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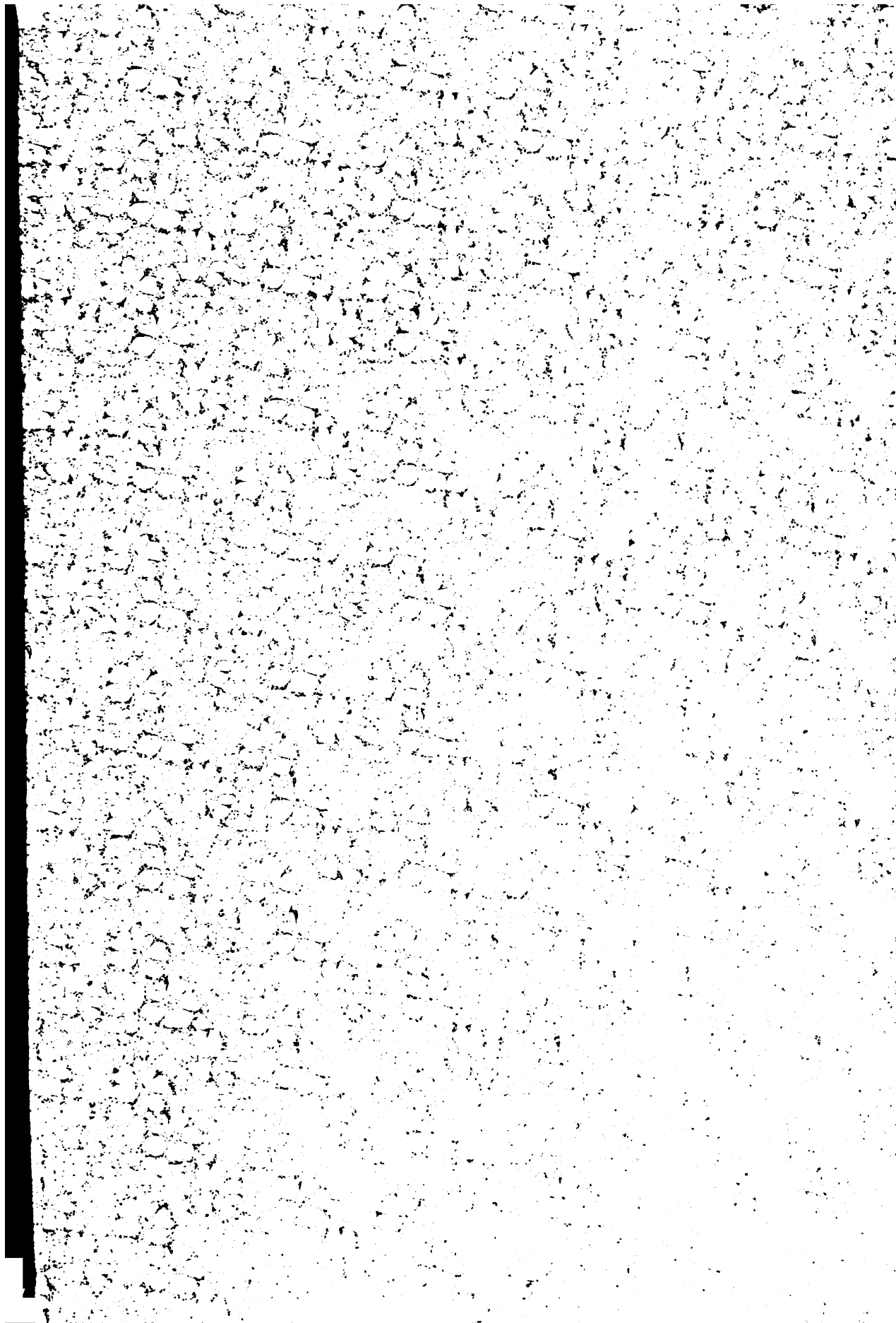
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THE  
THERAPEUTIC GAZETTE

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WILLIAM M. WARREN,

DETROIT, MICHIGAN.

1898.

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## Original Communications.

### THE TREATMENT OF OBSTINATE DROPSIES.\*

BY JAMES TYSON, M.D.,  
Professor of Clinical Medicine in the University of Pennsylvania.

Between a blind confidence in drugs which makes a fair estimate of therapeutics impossible, and an equally blind skepticism which nullifies therapeutics altogether, lies a golden mean of rational treatment the results of which are at once an encouragement to the

practising physician and a stimulus to further effort to extend the usefulness of our art. I shall attempt to substantiate this proposition by illustrations drawn from my experience in the treatment of obstinate dropsies. This subject is selected not simply because of my experience with it, but also because it is a condition uninfluenced by mental impressions, a condition which never passes away of itself, going on from bad to worse if left alone, and a condition which unfortunately too often resists treatment altogether. The cases on which my remarks are based fairly represent each of the three great etiological categories of heart disease, kidney disease, and liver disease. Contrary to what would

\*Read before the Blair County Medical Society, at Altoona, Pa., Oct. 19, 1897.

be supposed, experience shows that the difference demanded in the treatment of these three groups of cases is not usually very great, such difference being required rather by peculiarities in the individual case than by etiological conditions. This must be my apology for elevating for the time being what I truly recognize as a symptom to the dignity of a disease.

Previous to entering upon the subject proposed, let us see in what it really consists. Our patient has general anasarca, his tissues are distended with serum—waterlogged, as it were; there is effusion into one or both pleural sacs and probably into the peritoneal cavity. Many pounds of water are thus stored away which hamper his movements, interfere with important functions, gradually reduce his strength, and ultimately take away his life. Our task is to get rid of this dangerous accumulation. The difficulty is increased by the fact that he is necessarily ingesting water, not only in the shape of liquids but in the solid food, which is at least three-fourths water. It is plain, therefore, that we must get more water out of him than we put into him. It is evidently impossible to reduce a dropsy in a patient who is passing, say, thirty-two ounces of water in the shape of urine and other secretions while he is ingesting three and four times as much in the shape of food and drink.

There are two ways, therefore, in which our object may be accomplished: first, by cutting down the liquid ingested, and second, by increasing the output of liquids. The first of these has heretofore received less consideration than the second, in fact has been too often ignored. Nay more, by the ingestion of large quantities of water for its supposed diuretic action the very opposite effect is sometimes produced. Water is added to the tissues rather than removed from them. On the other hand, in a large number of cases we have taken a decided step towards the attainment of our object when we limit the ingestion of liquids or reduce them to a minimum.

The latter may be accomplished, as suggested by Matthew Hay, by reducing to a minimum the amount of liquid ingested, while permitting an ordinary mixed diet of easily assimilable food; or more satisfactorily by placing the patient on a diet of milk or dilute milk limited in quantity. The latter method is more satisfactory, probably because commonly no food is so easily assimilated as milk and partly because the quantity ingested is

easily estimated. I usually begin with so small a quantity as two to four ounces every two hours, keeping this up until the patient complains of hunger. Indeed, the dropsy often does not begin to disappear until the patient begins to complain of hunger. It would seem as though under these circumstances the interstitial effusion is being used up as food. After a decided effect is produced on the anasarca, or it has entirely disappeared, the quantity of milk is grudgingly increased. Then gradually other articles of food are added until the patient's appetite is satisfied.

Another very important advantage in a restricted diet is that it favors the attainment of the second part of the treatment, viz., the withdrawal of superfluous liquids from the body. I have observed over and over again that patients who are eating freely do not respond to diuretics and other remedies intended to secure this object so long as this large feeding is kept up. Such restriction of food may be distasteful to the patient, but he is usually willing to adhere to it if the rationale of its operation be explained, and especially if favorable results are early manifest.

A further indispensable condition of the successful attainment of the second division of our treatment is absolute rest in bed. This is often more difficult to accomplish because our patient has found the upright posture more comfortable, breathing more freely. The advantages of rest are most strikingly shown in hospital patients, where in cardiac and renal cases at least rest alone will sometimes entirely remove a dropsy. The reason is easy to see. The output of muscular energy in an ordinary day's work of eight hours is variously estimated by different physiologists at from 150,000 to 316,800 kilogrammeters, while the ordinary work of the heart equals 75,000 to 86,970 kilogrammeters. In hard bodily labor the total output of muscular energy is increased to from 220,000 to 400,000 kilogrammeters. Now when the patient is put to bed all this extra work is saved to the heart. In the case of professional men and others who do less muscular work the saving is not so great, but it is still considerable, and it is true of mental as well as physical work. Rest, mental and physical, then, is a most important agent in accomplishing our purpose.

Rest and regulated diet being secured, we are now ready to avail ourselves of measures calculated to increase the output of fluids from the body by the natural channels,



mainly the kidneys, the bowels, and the skin. The kidney and bowels should invariably be acted on at the same time, or rather the bowels should be first started. It is a waste of time and good medicine to attempt to secure the effect of diuretics without the preliminary action of a purgative. Of purgatives the best for the purpose are usually the salines. Rochelle salt I use more frequently than any other, giving half ounce to an ounce half an hour before food, preferably before breakfast. The Epsom salt is probably more efficient in the same dose, but less palatable. The compound jalap powder should not be forgotten in this connection. It is an admirable aperient in one or two drachm doses. A full dose of calomel, say seven and a half to ten grains, with an equal quantity of sodium carbonate, may be substituted, or blue mass; but the mercurials are much slower in action than the salines, requiring usually several hours, hence they are most conveniently administered in the evening, followed by a saline in the morning. In cases of hepatic disease with ascites these remedies are useful adjuvants. It is of great practical importance to give the saline in as small a quantity of water as possible, preferably not more than four ounces. This accelerates and increases the exosmotic effect by which the blood-vessels are depleted into the alimentary canal. Other purgatives may be demanded by circumstances, but usually those named are the most satisfactory. Epsom salt may be given quite effectually by rectum if any reason exists against its administration by the mouth, as follows: Sulphate of magnesia two ounces, boiling water three fluid-ounces, and glycerin one fluidounce.

Having secured a free action of the bowels, with the patient at rest on a restricted diet, we may select a diuretic. No question of general therapeutics is more unanimously answered than that digitalis is the best diuretic available. It remains to consider briefly which is the best preparation and the best mode of its exhibition. All things considered, the tincture is the most suitable, partly on account of its convenience, but chiefly, if the most modern studies are to be accepted, because alcohol extracts more of the most active and at the same time harmless constituents of digitalis than does water, which is mainly used in making the infusion.\*

\* Modern studies find in digitalis four active constituents, the digitalin of Schmiedeberg, digitoxin, digitalein, and digitonin. Of these, the first three increase the force of the heart's contraction, while digitalin further adds to the rise of blood-pressure by stimulating the vagus nerves

Clinically, however, it is sometimes of advantage to substitute the infusion for the tincture, which should be given in half-ounce doses to adults. From the fact that in making the fluid extract both alcohol and water are used, this preparation may be expected to be an efficient one, but I have not had much experience with it. As to the best method of exhibition, digitalis is one of the drugs which is slow of absorption and slow of elimination. It is, therefore, better administered in full doses at longer intervals than in small doses at closer intervals. I commonly begin with the tincture in ten-minim or twenty-drop doses four times a day, or fifteen minims or thirty drops three times a day. Almost always forty-eight hours supervene before any effect is noted, and we should wait at least this long before concluding upon its action. At the end of this time, if no diuretic effect is produced the dose may be increased to a drachm in the twenty-four hours, which I do not commonly exceed, preferring to change the preparation. The effect is recognized also by a slowing of the pulse, and should this fall to sixty the drug should be discontinued, even though no diuretic action is produced. An irregularity in a pulse formerly regular is also an indication that the drug should be discontinued. On the other hand, it is well known that too much digitalis makes an irregular pulse regular, and there is sometimes considerable difficulty in deciding which of these two conditions operates. The only way to settle it is to discontinue the drug for a full week in order that it may be thoroughly eliminated. Theoretically, at least, nitroglycerin is advantageously associated with digitalis because of its dilating effect on the arterioles, and practically it is without disadvantage. It is a drug of prompt action and short duration. It is therefore rationally given at short intervals, as  $\frac{1}{10}$  to  $\frac{1}{8}$  grain every two hours.

Notwithstanding its efficiency we would be but poorly armed if we had no other diuretic than digitalis. Furthermore, digitalis is a

centrally and peripherally. Digitonin, on the other hand, depresses the vagus nerve peripherally and centrally and depresses the heart muscle. It, therefore, antagonizes the effect of the other three active principles. Now, digitalin and digitalein are easily soluble in alcohol, digitoxin slightly so, and slightly in water. Digitonin and digitalein are soluble in water, but sparingly only in alcohol. It is evident, therefore, why the tincture should be a more active preparation than the infusion. It is true that there is tonic property in the infusion also, because the digitalein contained in it, together with the smaller quantities of digitalin and digitoxin, overbalance the effect of the digitonin.

drug which must be intermitted to secure its efficient action as well as to avert its toxic effect. The drug which is best substituted for digitalis varies somewhat with the nature of the disease causing the dropsy. In cases of *cardiac* disease I at present prefer theobromine. This preference has grown out of a large experience with this diuretic during the past year. In the course of such experience I have found it at times superior to digitalis—that is, it would act when digitalis did not. The dose I have found most satisfactory is forty-five grains in the twenty-four hours, conveniently divided into doses of seven and a half grains every three hours, which allowing for necessary interruptions results in the administration of at least forty-five grains in this period. This dosage is kept up for six days, at the end of which time, if diuresis has resulted, the effect will begin to wear off. During the last day of its administration I usually associate digitalis, continuing this drug after the theobromine is discontinued. In this way the diuretic effect is often kept up some time longer. In two of the cases which I shall report the effect was marvelous, raising the urine to 119 ounces in the twenty-four hours.

Theobromine is regarded as a renal diuretic—that is, as producing its effect by stimulating the action of the renal cells rather than by increasing blood-pressure by strengthening the heart muscle. It is obtained from cacao, and is chemically closely allied to caffeine—caffeine being trimethyl-xanthin, while theobromine is dimethyl-xanthin. It is a substance difficult of solution, but is more soluble in hot fluids than in cold, and is therefore conveniently administered in hot milk. It is also readily soluble in the saliva, and though bitter to the taste it is not unpleasantly so, and may be taken dry on the tongue followed by a mouthful of water. Theobromine is a constituent of diuretin, which is said to be composed of equal molecules of salicylate of sodium and a compound of theobromine and soda, and to contain fifty per cent. of theobromine. Diuretin was introduced several years ago and vaunted as a powerful diuretic suitable in all cases of dropsy, especially those due to chronic Bright's disease, but also in ascites and dropsy due to heart disease. It was claimed to be much superior to theobromine on account of its greater solubility, and was recommended in fifteen-grain doses to the daily quantity of 90 to 105 grains. It failed, however, to secure a footing in this country.

My own experience was that beyond a transient effect rarely lasting longer than the first day it was useless. It is somewhat singular that this more soluble preparation should be comparatively inert as contrasted with the insoluble theobromine, yet this is the conclusion to which I am forced from my own experience, viz., that diuretin is a comparatively worthless preparation while theobromine is a very efficient one. I must also admit that the drug is by no means equally efficient even in cases presenting apparently the same conditions. Different preparations may also vary in quality. I commonly order Merck's.

In this connection I will say what I have to say of a drug already mentioned as closely allied to theobromine, viz., caffeine. A few years ago I used caffeine a good deal as a diuretic, and good results seemed to follow its use, especially in connection with a restricted milk diet. Lately, however, my results have not been nearly so satisfactory, and I use it comparatively rarely to-day for its diuretic action. There is reason to believe that good results follow its prolonged use in cardiac cases in doses of from three to five grains three times a day.

Next after theobromine—indeed, often before it, especially in *renal* disease—comes another drug which I am sure is not sufficiently appreciated. I allude to sparteine sulphate, the active principle of broom. Few who have had much experience in the treatment of dropsy have failed to have their attention called to broom tea. Those who have tried it I am sure have sometimes found it quite an efficient diuretic. It is, however, a nauseous preparation, and the dose is unpleasantly large. Sparteine appears to be its true active principle and is a good diuretic. Heretofore it has been given in too small doses. The dose should never be less than one-fourth grain to adults to the amount of two grains in the twenty-four hours. It may even be increased to three and four grains in this period. I have never exceeded the latter quantity, desisting from its use when no diuresis follows such doses. Yet I am not aware that it is harmful in any dose.

Doubtless some one has ere this wondered why no mention has been made of strophanthus. It is a remedy which has met with favor, but I confess to having been myself greatly disappointed in it. Any results I have secured have been with doses as large as those of digitalis.

I never feel that I have done my duty

towards a case of obstinate dropsy where other measures have failed until I have tried the time-honored combination of calomel, squill, and digitalis. Occasionally I have seen the most marvelous effects from this combination, more particularly in cases of cardiac dropsy, when given in doses of calomel one-half grain, digitalis one grain, and squill one grain, every three hours until diuresis, free purgation, or both, have been obtained. I have seen dropsies disappear completely while using this combination and the patient resume active business life for a time longer. Calomel alone I have found at best a doubtful diuretic, and the fact that it has of late fallen almost entirely into disuse for this purpose seems to justify this conclusion. The small fractional doses often prescribed, such as one-twelfth, one-tenth, one-eighth, one-sixth of a grain, are too slow of effect. I should advise rather at least half a grain with twice as much sodium bicarbonate every hour, or three grains every three hours. From the larger dose a purgative effect at least is soon attained, and if this be associated with a diuretic action it is all the better.

Action on the bowels has been mentioned as an important adjuvant to action on the kidney by diuretics. But purgatives are useful also for their direct effect, the withdrawal of water from the system. To this end the hydragogues which produce watery movements are preferred, including the salines and elaterium. The former are best given in the morning before taking food. Elaterium when it acts nicely is an efficient agent for the withdrawal of water, but it is irregular and uncertain and often causes unpleasant nausea and vomiting. My plan is to give one-sixth to one-fourth of a grain every three hours until an effect is produced. Often there is no response until a number of doses have been given, when suddenly an almost uncontrollable flow of water follows. Once every other day is as often as this drug should be used.

The skin has been alluded to as one of the natural channels availed of to secure elimination of water. It is not usually as satisfactory as the kidneys or bowels because of the unpleasant effect of copious diaphoresis on the patient, the chief symptom complained of being a profound weakness. Why such a debilitating effect should follow a discharge of water by the skin is not plain to me. Sometimes, doubtless, it is exaggerated by the patient. Sweating is induced by the application of dry or moist heat constituting the hot

air and vapor baths, the hot wet pack, and Simpson's bottle-bath. The usual methods of applying the first two are so well known that I will not here give a description of them. On the whole the vapor bath, as contrasted with the hot-air bath, will, I think, be found more satisfactory, being less uncomfortable, less likely to produce headache, and more active. The unpleasant sensation often felt in the head may be averted by tying a handkerchief wet with cold water tightly around the forehead. The effect of the Turkish bath, which is less objected to by the patient, is similar. The hot wet pack and the bottle-bath, or Simpson's bath, are very pleasant forms of baths. In the former the patient is wrapped in sheets wrung out in hot water and finally covered with blankets. In the Simpson bath he is surrounded with hot-water bottles, wrapped with towels wrung out in hot water, and finally covered with blankets. The sweat thus produced is less trying and the patient often takes a refreshing sleep during it. The results of these methods of elimination are best maintained by keeping the patient in bed after the bath, and are best employed in acute cases and for uremia.

One drug only is markedly efficient to produce skin action, viz., jaborandi or its active principle pilocarpine. The latter is the most convenient preparation, and the best method of administering it is by the hypodermic syringe. One-fourth of a grain should be the maximum dose, and a powerful effect may be produced if it is associated with artificial warmth. The patient should also be clad in a sweater or lie naked between blankets rather than in a muslin shirt or between muslin sheets. Should dangerous edema of the lungs arise it may easily be controlled by a hypodermic injection of  $\frac{1}{100}$  or  $\frac{1}{80}$  of a grain of atropine.

Similar to the action of cardiac tonics and destined to be a valuable auxiliary in the treatment of dropsies, especially where the heart is at fault, is the Schott or Nauheim treatment by baths and exercises. The treatment is so called from the brothers Schott, more or less identified with it, and from the village of Nauheim near Frankfurt-on-the-Main, where water charged with carbonic acid and containing certain saline constituents, mainly sodium chloride and calcium chloride, flows abundantly from natural springs, warmed by nature's furnaces. Fortunately the baths can be carried on at home with almost the same results as at Nauheim, else it would scarcely be worth while to con-

sider them, as comparatively few invalids can afford to go to distant Nauheim, though marvelous results are said to attend such visits. The water of Nauheim has a temperature of 81° F. to 92° F. The bath of higher temperature is employed first, the duration being eight minutes. With successive baths the temperature is gradually reduced to 83°, while the duration is prolonged to fifteen minutes, with an intermission at the end of three or four days. As the temperature is reduced the saline constituents are gradually increased by the addition of the "mutter-lauge" or "mother lye" obtained by evaporating the natural spring water. A course consists of twenty to twenty-five baths. Towards the end comes the "sprudel" bath, the water of which is highly charged with carbonic acid, and the "sprudel strom" bath in rapidly moving water similarly charged. The little bubbles of carbonic acid stick closely to the skin, giving the patient a delightful sensation of warmth which takes away any unpleasantness which might arise from the water at this temperature. After the bath the patient is carefully dried with warm towels, some light refreshment is taken, and he rests for an hour.

The baths are imitated at home by dissolving chloride of sodium and chloride of calcium in water to which carbonic acid is added by decomposing bicarbonate of potassium by hydrochloric acid. Dr. C. N. B. Camac has calculated the required quantities of salt to each forty gallons of water for six different strengths of baths. In the baths I recommend I have adopted the proportions of sodium chloride and calcium chloride calculated by Camac, but have slightly modified the proportions of carbonic acid-forming constituents, making three strengths of the latter after the method recommended by Bezley Thorne, of London.

Bath No. 1: Sodium chloride, 4 pounds; calcium chloride, 6 ounces.

Bath No. 2: Sodium chloride, 5 pounds; calcium chloride, 8 ounces.

Bath No. 3: Sodium chloride, 6 pounds; calcium chloride, 10 ounces.

Bath No. 4: Sodium chloride, 7 pounds; calcium chloride, 10 ounces; sodium bicarbonate,  $\frac{1}{4}$  pound; HCl (25 per cent.), 12 ounces.

Bath No. 5: Sodium chloride, 9 pounds; calcium chloride, 11 ounces; sodium bicarbonate, 1 pound; HCl,  $1\frac{1}{4}$  pounds.

Bath No. 6: Sodium chloride, 11 pounds; calcium chloride, 12 ounces; sodium bicarbonate, 2 pounds; HCl, 3 pounds.

The alkali should always be slightly in excess unless a porcelain or paper tub is used.

In preparing the bath the salts, including the right proportion of bicarbonate of sodium, are dissolved in the water. The bottle containing the hydrochloric acid is inverted and lowered until its mouth is below the surface, when the stopper is withdrawn and the bottle moved about so as to diffuse the acid as uniformly as possible through the water. In this way the bath is made ready in a few minutes. The carbonic acid is the most unsatisfactory feature of the artificial bath, since it is rapidly dissipated and produces only feebly the effect of the acid in the natural baths. Hence the patient should be promptly put into the bath after the HCl is added, lest the CO<sub>2</sub> is lost before he can get the effect of it. My plan has been to give the baths on alternate days, using the weaker until its effects are exhausted, then passing on to Nos. 3 and 4 in the same manner. Nos. 5 and 6 are not often called for.\*

As already stated, the baths are most efficient in cardiac disease, but they are also useful in renal affections. Their immediate effect is a diminished pulse-rate, intensified heart sounds, diminished breathing-rate, while the dilated heart is reduced in size—under favorable circumstances to almost its natural limits. The effect is also to increase the action of the kidneys and that of the skin. These effects are ascribed to the carbonic acid, the chloride of sodium, and chloride of calcium. In three or four days, it is said, they are apparent in a free flow of urine, which may continue for days and weeks; metabolic changes are accelerated and improved; the deep seated organs, especially the liver and pelvic viscera, are relieved of congestion; while the heart, relieved of its burden, and contracting on its contents fully and without perturbation, derives from its improved coronary circulation material for the repair of its weakened or damaged tissue. In a word, the effects of these baths are said by those who have watched them to be marvelous and incredible to any one who has not observed them. While I have not yet seen the marvelous effects thus described, I have seen very decided improvement attend their use.

As to *rationale*, it is thought stimulation is exerted through the centripetal nerves on the cardiac and vasomotor centers, improving the nutrition of the heart, and indeed of the

\* While reading the proof of this article I am having constructed for use at the Hospital of the University of Pennsylvania an apparatus for introducing carbonic acid into the water of the bath after a device suggested by Mr. Smitheman, a student of medicine.

whole body. It is supposed by Schott that this effect is increased by the imbibition of a small amount of salts into the superficial layers of the skin, by which a more prolonged stimulation is kept up. A slight sense of oppression to breathing is sometimes present in the course of the first two or three baths, which should not alarm the patient. It is described by Dr. Richard Greene, of London, who was himself treated at Nauheim, as a sensation of "girdling" by hoops applied to the thorax.

A part of the Nauheim treatment are the resistance exercises or "Widerstandgymnastik" suggested by Ling, but especially utilized and further developed by the brothers Schott at Nauheim. The elder, August Schott, died in 1882, but the younger, Theodor, continues the leading physician at Nauheim. The exercises are not as easily described as shown by actual practise, but briefly they may be said to include every reasonable movement of the arms and legs, gently resisted by opposite pressure exerted by the physician or attendant. Thus, there is flexion of the arms on the forearm, carrying the arms forward until the palms are apposed, then backward from this position until they are in a line, and raising from the sides upwards until they touch the sides of the head. There are also radial movements of the arms alongside of the head, etc.—in all nineteen movements. Similar movements are made with the legs, including flexion and extension at the knee, ankle, and hip-joints. They include also lateral and twisting movements of the trunk.

The exercises are not commenced until some very positive effect of the baths is secured, when they are associated with the baths or substituted after the latter are discontinued. The effects of these gymnastics are described as identical with those of the baths. The extremities become warm, the breathing is deepened, the sense of oppression is relieved, the pulse becomes slower, the dilated heart area reduced. Even the liver, which is so often enlarged in heart disease as a result of passive congestion, is said to be reduced in size.

In carrying out the gymnastics it is all-important that the patient should not be fatigued; the movements should be made slowly, and the rule of action should be moderate exertion and no fatigue. No movement is to be repeated twice in succession, and each single or combined movement is followed by an interval of rest. The patient should be carefully watched, and the least

suggestion of cyanosis or shortness of breath should be a signal for discontinuing the treatment. The movements have, therefore, a more limited application than the baths, since a condition of their success is the absence of any consequential embarrassment of the circulation or breathing. Rarely, however, they may precede the baths with advantage, as where the patient is too ill to be removed from bed, when their cautious use may be practised until strength is attained to allow the baths to be used at a later date.

In my own practise I have associated massage with this treatment with the most satisfactory results. The massage may even be performed while the patient is in the tub, and it serves at least to interest and entertain him. Massage alone is a very valuable adjuvant in the treatment of dropsies. I have seen many a limb swollen and distended to almost stone-like hardness rendered soft and flaccid by a half-hour's massage, which seems to produce some absorption of the effused liquid.

There are cases in which all the resources described fail of their purpose, and liquid remains stored away in the interstices of the body and in the serous cavities. The latter may require to be relieved by paracentesis of the chest and abdomen, and the former by punctures made with the needle, and incisions into the limbs or the scrotum, which often becomes enormous. Into these parts Southey's tubes may be inserted and many ounces of liquid thus drained away. These tubes must be carefully watched and kept aseptic as possible, as by neglect of such precautions septic inflammation may be induced. Punctures may be made by the needle or by the scarificator. But these punctures soon become very annoying to the patient and he grows to hate them, and I am inclined to think an incision, say behind the ankle, done under local anesthesia produced by ice and salt or the chloride of ethyl, is to be preferred. Anesthetics should not be omitted as the patient is enough annoyed by his sufferings, and he should not be allowed to suffer more than necessary. Many of you have seen spontaneous rupture of the skin take place and large quantities of water thus drained away. I have not infrequently seen the beginning of improvement date from such rupture, so that I am in the habit of telling the patient that such an event is fortunate.

The following are illustrative cases:

CASE I.—*Hypertrophic cirrhosis, ascites, general anasarca.* This case was one of enlarged liver and spleen with albuminuria in

a man of fifty-three years, who twenty years previously had acquired a chancre which was followed by secondary symptoms of short duration. The lesions were, therefore, presumably syphilitic. The patient had always been a free eater and drinker and a hard worker in law, which was his profession. When he came under my care there was general anasarca; the legs and thighs were distended to bursting; the scrotum was as large as a child's head, excoriated, red, and painful, while it was impossible to keep it free from contact with urine and liquid discharges from the bowels, which caused agonizing irritation every time these evacuations took place. The liver rose high up under the dome of the diaphragm on the right side, reaching to the fourth rib, and extending below the edge of the thorax. There was also effusion into both pleural sacs, and the urine was loaded with albumin. The heart was enlarged, but there was no evident sign of valvular disease. The illness, dating from December, 1894, began with shortness of breath, which gradually grew worse and often amounted to orthopnoea, which I ascribed to encroachment on the breathing space by the hydrothorax and enlarged liver and dilatation of the heart rather than to valvular disease of the latter.

He was admitted to the Hospital of the University of Pennsylvania as a private patient on the 31st of July, 1896. The urine voided in the first twenty-four hours after admission amounted to twenty-six ounces and was dark hued, had a specific gravity of 1030, was copiously albuminous, and contained numerous hyaline and pale granular casts.

The treatment instituted was a half ounce of Rochelle salt each morning before breakfast with tincture of digitalis in ten-minim doses. After two days, the urine remaining uninfluenced, I added sparteine sulphate in one-fourth grain doses every six hours, continuing the digitalis and Rochelle salt, which acted well. At the end of the fourth day the amount of urine recorded was 30 ounces; at the end of another twenty-four hours, 44 ounces; at the end of another, 53 ounces; another, 72½ ounces; and another, 74 ounces. Then it fell to 50, 32½, 37, 30, and 35. At this time the pulse began to be intermittent, and as I believed this intermission was due to the so-called cumulative effect of the digitalis this drug was discontinued. Unfortunately the pulse and temperature chart of this date have been lost, and the rate of the pulse is unknown. During this time his diet was what was called light special, consisting

of bread and butter, a limited amount of milk, chicken, eggs. We kept in view the fact that in order to reduce dropsy more fluid must be excreted than is ingested. With cessation of the effect of the sparteine this drug was also discontinued, and the patient was put on a pure milk and water diet, not exceeding thirty-six ounces in the twenty-four hours, and a silver cannula with rubber tube attached put into the scrotum. The urine voided continued 38, 35, 30 ounces, while to this was added liberal drainage by the tube, 32½, 18½, 17, 6 and 4 ounces being recorded, while there was also much oozing from punctures made in the legs. The swelling gradually declined. After what seemed a sufficient intermission, the digitalis and sparteine were again commenced. No marked effect on the urine followed, the maximum obtained being forty ounces, but the oozing continued liberal. Three or four days later calomel was added in doses of three grains every four hours, eighteen grains being given in the first twenty-four hours and twenty-one in the second without any appreciable effect on the urine, which continued at about twenty-seven to thirty-one ounces.

Theobromine was then substituted for the sparteine, and in a short time the urine again increased 52, 58, 54 ounces. That this effect was due to the theobromine subsequent experience amply proved, for repeated trials with digitalis alone were without effect. Strophanthus was equally inefficient, while theobromine was promptly followed by copious diuresis. Improvement continued until the dropsy almost all disappeared from the thighs and trunk, though considerable remained in the pleural cavities. On the 26th of October the right pleural sac was tapped, 33½ ounces being drawn off. This cavity was tapped again later, as was also the left side. On the 13th of November he had a partial monoplegia of the right arm, which I thought might be due to an embolus or thrombus of the vessel supplying the arm area of the cortex. From this he gradually recovered, and it did not recur.

As in another case to be referred to, as the dropsy of the legs improved effusion into the abdomen increased, and on January 29 eight pints and thirteen ounces were drawn off. The Nauheim baths were started February 5. The fluid again accumulated and was removed by tapping February 25. Remembering the effect of a like experience with him he was placed on a starvation diet of milk and Vichy, of each two ounces every

two hours, while the theobromine was ordered, seven and a half grains every four hours. By February 27 the urine rose to sixty ounces. The Nauheim baths were instituted February 20. By March 5 his breathing-rate, which had been 30 to 37, was reduced to 20, essentially normal.

Time and again in the course of the history of this case the urine was started by theobromine when all else failed, while as often digitalis remained useless. I might state, however, that for a time the use of digitalis by the rectum in drachm doses of the tincture was efficient. Perhaps the effect by the mouth was influenced by the patient's extreme repugnance to it. He constantly recognized it when administered and hated it. As was to be expected in an intractable case theobromine also gradually lost its effect, but by means of it and an occasional tapping we were able to carry him along, and in the latter part of June and early in July he drove out almost daily. He was tapped last on the 6th of July and the fluid kept down for a time by the theobromine, but finally this drug lost its effect altogether. He returned to his home soon after and died suddenly September 3, it being generally conceded kept alive for many months by the treatment.

The autopsy disclosed a huge liver; the spleen was twice the normal size. The kidneys were less altered, the changes being apparently those of passive congestion.

CASE II.—*Mitral incompetency, general anasarca, ascites, hydrothorax.* Mrs. L., aged thirty-six, a native of Ireland, was admitted to the University Hospital January 1, 1897. She was the mother of seven children, and had always been a hard working woman until failing health compelled her to give up work ten months before admission. She had been a sufferer from rheumatism, and ten years ago had a severe attack which confined her to bed three months. Ever since this attack she had been subject to swelling of the feet, especially after standing. About ten months previous to admission, just after the birth of her youngest child, she began to suffer with shortness of breath on exertion, palpitation of the heart, and severe pain between the shoulders. Her feet and legs became edematous, and seven months later her abdomen began to enlarge. Then she was admitted to St. Timothy's Hospital, Roxboro, Pa., where she improved, and after five weeks was discharged much relieved, and was even able to do light work for about a month. Soon, however, her symptoms re-

turned, her urine becoming scanty and high colored, her limbs swollen, her abdomen to fill up. She suffered much from pain in the epigastrium and left hypochondrium.

On admission to hospital the symptoms described were present; even her face was swollen. Besides the ascites, there was some pleural effusion in both sides. There was a loud double mitral murmur and a tricuspid systolic murmur with hypertrophy of left auricle and left and right ventricles. The liver was enlarged, extending below the edge of the ribs, and was everywhere tender. Her urine was albuminous and contained numerous hyaline and pale granular casts. She was intensely anemic, had no appetite, and looked a forlorn, ill woman.

Under rest and digitalis she improved, and at the end of ten days her dropsy had much diminished, but the ascites remained, and on the 16th of January she was tapped from the abdomen. The fluid slowly reaccumulated. On the 22d she received her first Nauheim bath, and was tapped again on January 26. The baths had an invigorating effect and reduced the pulse and breathing-rate, but I cannot be confident that the cardiac boundaries were appreciably altered. The baths were given on alternate days, but were discontinued after four were given. On the 29th she was tapped from the right thorax, thirty-three ounces being drawn off. Digitalis and strophanthus having both been without effect, sparteine was ordered February 2 in one-fourth grain doses every three hours throughout the twenty-four. Later it was associated with digitalis, and though there was some response it was temporary, and the abdomen refilled rapidly. On the 21st of February she was passing only eleven ounces of urine. On that day theobromine was ordered, and in two days the urine voided was 65 ounces, the next day 119 ounces, the next 96, the next 86, the next 58, and the next 57. The secretion then declined, but in the meantime the ascites had disappeared as well as the dropsy from the arms and legs. Her heart being rapid and irregular in its action, digitalis was ordered March 11. It was efficient in regulating the heart, but did not act as a diuretic. By the 15th of March there was again such an accumulation of fluid in the pleural cavity that eight pints were withdrawn by tapping, followed by theobromine with a view to keeping down the accumulation. On the 22d of March she was passing only about seven ounces of urine, and by the 28th she was voiding sixty. By the

4th of April the urine was again scanty and the abdomen filling up. Citrate of potassium having been tried without effect, theobromine was again ordered on the 26th of April, when the urine was but twelve ounces. By the 30th it was seventy-two, and on April 3 it was fifty-two ounces. On April 13 her urine was free from albumen. It is not necessary to read the history further. Thereafter, whenever the ascites appeared theobromine was ordered with the usual effect. She was discharged July 12, of course not cured—she never could be—but so much better that she thought she would like to go home and remain for a while with her children. When last heard from she was living, but not as well as when in the hospital.

My results with theobromine in this case have not been realized with every one. In another patient, a woman about the same age, with identical heart lesions, it was absolutely useless. This woman I have tapped nine times, the last time removing three gallons, yet when not weighted down with water she is active and even much of the time does her own housework. An interesting change of symptoms took place. When I first saw her she was very dropsical in her legs; but when the accumulation occurred in the abdomen, probably due to the contracting liver, the swelling in the legs disappeared and remained absent for a long time. It is just beginning to return.

CASE III.—*Subacute parenchymatous nephritis, anasarca, hydrothorax; recovery.* Mr. A., aged thirty-six, a merchant, was admitted as a private patient to the University Hospital, September 14, 1896. His father died of apoplexy, which may or may not have had to do with renal disease; otherwise his family history was negative. Up to five years ago he had little or no illness. Has since suffered rather freely from gastro-intestinal attacks with vomiting and diarrhea, but otherwise has not been much ill. Three months before admission he had one of these attacks, which the physician called subacute inflammation of the bowels. He was only two days in bed, but since then he has not been well. He tried to return to work, but could not keep at it. About July 15, while at Atlantic City, he noticed that his feet were swelling. His urine was examined by a physician, who declared it normal. Shortly after this it was examined by another physician, who reported it "in a bad way." He entered a hospital in the city of his residence and appears to have been judiciously treated, but did not improve.

He then came under my care as stated, September 14, 1896.

On admission he was edematous as to his feet, legs, and trunk, and there was effusion into both pleural sacs. His urine was very scanty, only eleven ounces being passed during the first twenty-four hours of his residence in the hospital. It contained three-fourths its volume of albumin and large numbers of tube casts, including granular fatty casts, pale granular and hyaline casts, with numerous granular fatty (compound granule) cells and leucocytes.

The treatment instituted was a drachm of Epsom salt every morning before breakfast, with digitalis tincture in ten-minim doses every six hours. His diet was light, including toasted bread, with milk as a drink—not an exclusive milk diet. At the end of three weeks (October 6) I noticed that our efforts to secure diuresis had been almost failures. The daily output of urine ranged from ten and a half to eighteen ounces—and only once the last amount—up to the 21st of October. Digitalis was suspended and reordered fortified with solution of acetate of ammonium without effect. Sparteine was no more efficient than digitalis. On the other hand, elimination by the bowels was very active, from two to six stools daily being recorded. To this, rather than to the renal secretion, must be ascribed the slight improvement noted on October 6, consisting in a slight reduction in swelling and a drop in the volume of albumen to one-half as contrasted with three-fourths on admission. On the 12th we had recourse to theobromine in fifteen-grain doses three times a day. On the 16th, theobromine appearing to have disturbed his stomach, it was discontinued. On the 15th massage was commenced, and on the 20th we noted: "The massage seems to be working well with Mr. A. The effect has been not only to reduce the swelling but also to produce a general increased comfort, while the urine secretion was well maintained. His stools undoubtedly supplement the action of the kidneys in a helpful manner, since the discharges are numerous and almost liquid. His treatment at present consists of massage daily, digitalin one-sixtieth of a grain once a day, increased to-day to twice a day, and a drachm of sulphate of magnesium every morning. We have also modified his diet, withdrawing the milk between meals, and giving him a moderate solid meal with coffee in the morning, and water at noon and in the evening, and oyster broth in the evening."



By the 21st his urine had reached  $23\frac{1}{2}$  ounces; on the 24th  $43\frac{1}{2}$  ounces; on the 25th 33 ounces; on the 27th 48 ounces. On this day it still contained one-half its bulk of albumen with hyaline casts, but the dark granular casts had disappeared. The digitalin, which had been given in doses of one-sixtieth grain twice a day, was tentatively omitted on the 27th. Notwithstanding this the urine continued to rise, reaching 50 ounces on the 31st; 57 on the 1st of November;  $65\frac{1}{2}$  on the 2d; and 70 on the 3d. We concluded, therefore, that the digitalin had had little if anything to do with the diuresis. After this the urine began to drop off, but still kept up to about thirty ounces, and as the dropsy by this time had pretty well disappeared the decline appeared natural. By November 20 there was no dropsy and no signs of effusion in the chest.

Mr. D. had from the beginning a cystitis which gave rise to considerable pus in his urine. This had recently become aggravated. Irrigation was ordered on alternate days, and in a very short time the pus had almost totally disappeared. On the 28th of November the urine, of which there was but  $18\frac{1}{2}$  ounces, contained one-third bulk of albumin and a little pus, but no tube casts. As there was no dropsy we suspected the scanty urine was due to too meager ingestion of liquids, and he was ordered to drink freely of water between meals, and in a few days the secretion had risen to fifty ounces. By the 8th of December the albumin was reduced to a mere trace. On December 12 we noted: "Mr. A. has continued to improve and is apparently well. We note also this day there is a disposition to alkalinity of urine with a tendency to deposit triple phosphate crystals almost immediately after it leaves the bladder." Ten minims of dilute nitro-muriatic acid was ordered three times a day, and in two days this alkalinity had passed away. On the 13th of December he was discharged in apparent perfect health, though there was still a mere trace of albumin. I have examined his urine many times since and found it normal.

This case appeared at one time so desperate, and several times was associated with a headache so severe, that I once thought a fatal uremia imminent. Yet he has recovered apparently completely.

Looking about for the instrument which brought the turning point in his case, I cannot but think it was the massage. From the day this treatment was instituted improvement set in. It was continued up to the time

of his discharge. Massage was used in the case of Mr. W. first reported with great comfort, and aided also to reduce the dropsy, but the more intractable nature of his disease made all improvement temporary. I do not forget that Mr. A. received digitalin at the same time up to one-thirtieth grain a day, but I have so constantly failed in other cases to produce any effect with the drug that I cannot think it had anything to do with the good effect.\*

One of the most valuable lessons taught by the last case, and in fact by all of them, is that each case is a law unto itself and that we cannot lay down any one rule of treatment even in cases exhibiting much similarity, while the individual too should come in for a full share of consideration. Thus I have had patients to whom massage was intolerable and to whom the Nauheim bath was a source of terror.

I hope I have shown that much may be done for these intractable cases by a judicious treatment, and that by patience associated with abundant resources an apparently hopeless case may even recover and the word "cure" in its broadest sense be applied to its management. Timely and judicious changes in treatment are most important in these chronic cases, while hasty and thoughtless changes are harmful.

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*THE VALUE OF POTASSIUM PERMAN-  
GANATE AS AN ANTIDOTE FOR  
OPIUM AND ITS ALKALOID,  
MORPHINE.*

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AND  
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Assistant Demonstrator of Pharmacy.

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Dr. William Moor, of New York, has been given the credit of introducing potassium

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\*I have been a good deal discouraged, as I suppose many have, by the variety of products which have received the name digitalin. These have been mentioned in a note on page 3. I cannot forbear, however, calling attention to a recent paper by Dr. Henry Beates on "The Use of Digitalin with Reference to Dose," published in the *Journal of the American Medical Association* of July 26, 1897. In this paper Dr. Beates reports some remarkable results from the digitalin (German, Merck) in doses of one-tenth to one-half grain, far exceeding amounts which one would consider safe in a drug which, though of acknowledged uncertainty, has heretofore been regarded as a powerful poison. Knowing Dr. Beates as I do, and having confidence in his judgment and reliability, I shall take an early opportunity to make a trial of his method.

permanganate as a chemical antidote to morphine, and he demonstrated beyond a doubt the antidotal properties of this substance when both were administered by the mouth. The power of potassium permanganate to oxidize morphine and some other alkaloids, when brought in direct contact with them, is not to be disputed, and if administered by the mouth in dilute solution while opium or its alkaloids are still in the stomach, immediately oxidizes them and thereby prevents toxic effects from being manifested. The originator of the antidote as well as several other physicians appear not to be satisfied with the beautiful and satisfactory action of the antidote in neutralizing the effects of morphine when administered by the mouth, but put forward the extravagant claim that even when given hypodermically potassium permanganate was a valuable antidote to opium and its alkaloids.

For the drug to be of value when given hypodermically there are but three possible ways in which it may overcome the poisonous effects of opium: First, chemically, by coming in contact with the alkaloids in the blood and thereby oxidizing them; second, by acting as a physiological antagonist; and third, mechanically, by giving rise to severe pain which follows the injection of potassium permanganate, thereby assisting in keeping the patient awake.

With the idea of substantiating or disproving these claims, as far as it is possible to do so by study upon animals, a series of experiments were carried out in the Laboratory of Experimental Therapeutics of the Jefferson Medical College. It was found that the approximate fatal toxic dose in dogs was about .600 to .700 grammes of morphine sulphate per kilogramme of body weight, but to make sure that a full poisonous dose was given in each case, the quantity of morphine administered subcutaneously in each of the recorded experiments was .750 grammes per kilogramme of body weight. This dose was usually fatal in from two to three hours.

The following records will show that six dogs were given, subcutaneously, toxic doses of morphine, all dying in from two to three hours. Then five dogs were given toxic doses in the same manner, and followed by subcutaneous injections of potassium permanganate in from five minutes to an hour, and still all the animals died as promptly as if no permanganate had been given.

Next, a dog was given less than a toxic dose of morphine hypodermically and the

antidote given. The effects of the morphine were the same as if no potassium permanganate had been administered.

Finally, a dog to which no morphine had been administered was given twenty grammes of potassium permanganate subcutaneously, and the only effect noted was that the injection gave rise to symptoms of very severe pain, which passed off in about thirty minutes.

One grain of potassium permanganate is said to neutralize one grain of morphine, but in test tubes at least two grains of potassium permanganate are required to reduce one grain of morphine, and the following recorded experiments were conducted upon this basis.

The general effects of morphine upon all the dogs to which it was given were similar to those recorded in experiments No. 1 and No. 7. On account of the large quantities of morphine required to produce death in dogs, the amount of fluid to be injected was too large to be administered with a hypodermic syringe, so a fountain syringe to which was attached a small cannula was employed for this purpose.

It is to be noted that dogs may be given enormous quantities of potassium permanganate without being thereby poisoned. (See Experiment No. 13.) As the potassium salt is only soluble in 1 in 16 of cold water, as much as 350 to 400 cubic centimeters of water was required to dissolve the larger doses of permanganate, but as the solutions were always made in warm water and given by means of the fountain syringe, with trocar and cannula attachment, and injecting into several parts of the body, no difficulty was experienced in dissolving or administering the chemical.

AUGUST 11, 1897.

*Dog No. 1.—Weight 12 kilogrammes.*

- 11.55 A.M.—Nine grammes morphine sulphate was given subcutaneously, using a fountain syringe and a small cannula. Dog became quiet and languid almost immediately, lying quiet for about twenty-five minutes.
- 12.45 P.M.—Rises up and attempts to walk. There is considerable tetany in all the muscles.
- 1.05 P.M.—Tetanic convulsion.
- 1.20 P.M.—Severe tetanic convulsion.
- 1.25 P.M.—Severe tetanic convulsion, relaxation, shallow rapid respiration, then breathing ceased altogether. Heart continued beating for about two minutes.
- 1.30 P.M.—Dead.

AUGUST 12, 1897.

*Dog No. 2.—Weight 16 kilogrammes.*

- 11.55 A.M.—Twelve grammes morphine sulphate subcutaneously.
- 2.00 P.M.—Dead.

AUGUST 17, 1897.

*Dog No. 3.—Weight 14½ kilogrammes.*

11.05 A.M.—Ten grammes morphine sulphate subcutaneously.

1.05 P.M.—Dead.

AUGUST 17, 1897.

*Dog No. 4.—Weight 8 kilogrammes.*

11.25 A.M.—Six grammes morphine sulphate subcutaneously.

2.05 P.M.—Dead.

AUGUST 18, 1897.

*Dog No. 5.—Weight 17 kilogrammes.*

10.25 A.M.—Twelve and a half grammes morphine sulphate subcutaneously,

2.10 P.M.—Dead.

AUGUST 20, 1897.

*Dog No. 6.—Weight 12 kilogrammes.*

2.00 P.M.—Nine and three-fourths grammes morphine sulphate subcutaneously.

5.45 P.M.—Dead.

AUGUST 25, 1897.

*Dog No. 7.—Weight 13½ kilogrammes.*

10.40 A.M.—Ten grammes morphine sulphate subcutaneously.

10.55 A.M.—Twenty grammes potassium permanganate subcutaneously.

11.20 A.M.—Considerable tetany in all muscles.

1.10 P.M.—Severe tetanic convulsion, relaxation, rapid shallow breathing.

1.13 P.M.—Respiration ceased; heart beat for about two minutes. Dead.

(It will be seen that not only did the alleged antidote not prevent death, but it did not modify the effect of morphine in any respect.)

AUGUST 25, 1897.

*Dog No. 8.—Weight 16½ kilogrammes.*

3.58 P.M.—Eleven grammes morphine sulphate subcutaneously.

4.05 P.M.—Twenty-two grammes potassium permanganate subcutaneously.

6.00 P.M.—Dead.

AUGUST 26, 1897.

*Dog No. 9.—Weight 6½ kilogrammes.*

10.25 A.M.—Five grammes morphine sulphate subcutaneously.

11.00 A.M.—Twelve grammes potassium permanganate subcutaneously.

2.00 P.M.—Dead.

AUGUST 27, 1897.

*Dog No. 10.—Weight 6½ kilogrammes.*

3.30 P.M.—Four and eight-tenths grammes morphine sulphate subcutaneously.

4.30 P.M.—Ten grammes potassium permanganate subcutaneously.

8.00 P.M.—Dead.

AUGUST 30, 1897.

*Dog No. 11.—Weight 12 kilogrammes.*

10.45 A.M.—Ten grammes morphine sulphate subcutaneously.

11.15 A.M.—Twenty grammes potassium permanganate subcutaneously.

3.15 P.M.—Dead.

AUGUST 30, 1897.

*Dog No. 12.—Weight 16 kilogrammes.*

10.45 A.M.—Eight grammes morphine sulphate subcutaneously.

11.00 A.M.—Sixteen grammes potassium permanganate. Animal recovered completely.

This animal did not receive a toxic dose, which would have been thirteen grammes. The administration of the potassium permanganate in no way modified the usual effects of the morphine.

SEPTEMBER 3, 1897.

*Dog No. 13.—Weight 6½ kilogrammes.*

3.35 P.M.—Twenty grammes potassium permanganate given subcutaneously. Symptoms of very great pain were occasioned by this injection, and it continued for about thirty minutes. At the end of that time the animal drank water, walked around the room, and with the exception of some fright appeared to be in normal condition.

In these experiments dogs Nos. 1, 2, 3, 4, 5, and 6 received full toxic doses of morphine sulphate subcutaneously, and all died within a few hours. Dogs Nos. 7, 8, 9, 10, and 11 received full toxic doses of morphine sulphate subcutaneously, which was followed in periods ranging from a few minutes to an hour with potassium permanganate given subcutaneously; these animals also died as promptly as those which received no permanganate, nor did the poisonous effects of morphine appear in any way to be modified. One dog (No. 12) received less than a toxic dose of morphine, and, although followed by permanganate, it did not appear to modify in any way the usual non-toxic effects of morphine.

Lastly, a large dose of potassium permanganate was given subcutaneously to a dog which had not received morphine; and with the exception of the pain, which lasted for about thirty minutes, the animal appeared to suffer no inconvenience, and recovered fully. These experiments lead to most serious doubt as to the efficiency of potassium permanganate as an antidote to opium or its alkaloids when given hypodermically.

#### SOME EFFECTS OF CANNABIS INDICA IN LARGE DOSE.

BY ROBERT C. BICKNELL, M.D.,  
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That cannabis indica as encountered commercially is extremely variable in activity is a matter of common knowledge. This applies alike to the crude drug and to all preparations made from it. It is also generally understood, I believe, that the effects arising

from the ingestion of even large doses of a potent preparation are likely to be alarming rather than dangerous, and that no case of poisoning which resulted fatally has as yet been recorded. A temporary neglect of the facts of the former statement, as a consequence chiefly of a realization of the truth of the latter, resulted in my passing through a series of experiences the sensations of which I wish to record, as embodying some features of the drug's effects not generally described, and as going farther than such recorded experiences have hitherto been carried.

I had noted with interest the account of Dr. H. C. Wood's experiences as given in his work on Therapeutics. The preparation which he had taken was made, I believe, from the American variety of cannabis. I had taken previously an extract made by an American house, gradually increasing the dose until five grains had been taken with scarcely perceptible effect, and recall giving within the space of three hours fifteen grains to a boy of seventeen with only slight drowsiness resulting. Wishing to avoid the tedious increase from one-eighth grain up, as in the previous case, I took at once three grains of an English extract. This preparation was quite soft, of a handsome green color, taken from a freshly opened ounce jar, and was put into a gelatin capsule. The capsule was swallowed at 5 P.M. No effect was noticed until nearly three-quarters of an hour had passed, when a slight frontal headache was felt, dull in character and lasting only a few minutes. At 5.45 I was writing, when at the end of a sentence the right hand was suddenly jerked upward, slightly impairing the symmetry of the writing. A slight haze now became perceptible about the margins of the field of vision; the pulse was noticed to be somewhat accelerated, full, and strong. On being spoken to there was a perceptible interval before complete comprehension of the words, the mind seeming to halt a little time before acting. Answering speech was also slow, and after a short time was somewhat confused, not greatly so, but words would become transposed in a sentence, requiring two or three trials to get them in their proper places. The haze gradually grew centerwards, until by 6 P.M. only the object looked at could be seen, all the surrounding field being dark as by a shadow from the circumference. Looking at my hands the fingers seemed enormously long and quite large and were moved with perceptible effort—the move-

ment following an interval, and with a jerk, as if the impulse was delayed in transmission and reached the extremity all at once, not gradually as is usual.

With the beginning of the impairment of vision the muscles at the back of the neck began to be painfully contracted, the contraction beginning with those attached to the occiput, gradually extending downward, and including the muscles of the back until marked opisthotonos resulted. This contraction was tonic and relaxed only when violent friction was applied over the affected muscles.

The pulse was now 100, temperature normal, the respiration slightly hurried, though this may have been owing to some nervousness which now became manifest. There was a sense of extreme tension all along the spinal column.

There were no visions up to this time, and no pleasurable sensations whatever were experienced throughout. At this time I began to have an impression of duality. I was fully aware that I was going through this experience, yet could not rid myself of the impression that I was witnessing it in another. Gradually I got farther away from reality, occurrences being given an interpretation quite foreign to their actual significance. For a long time I could bring myself back to a full realization of everything by an effort of will, a stronger effort being required each time until finally occurrences—all except the most pronounced impressions—were wholly lost sight of. Until after 6 P.M., walking was perfectly steady, and anything directly looked at could be seen, though near objects seemed quite far away. The sense of the duration of time also became altered; a minute seemed as long as an hour almost, and the passing of the minute hand of the clock from one figure to another seemed to require an interminable time.

At 6.15 I lay down, and surrounding objects and subsequent sounds became merely a part of a confused series of visions, many quite vivid for the time but disconnected and too numerous to describe. I recall that at one time I saw the earth free in space, and comprehended all the laws which maintained its position in the universe with its numerous relations to other bodies, and perceived the result of every act, however trivial, even to the ultimate end of time. Every result, direct and indirect, was perfectly clear with but slight mental effort. Mixed with these ideas were other impressions; views of the room in

which I was, and of the people about me, and trains of thought doubtless started by occurrences which I did not notice. Much of the imagery was quite fantastic, though the sensations were rather of a painful and disagreeable nature. I was aware of any violent movement or loud noise during the whole time. The teeth were firmly set, it being impossible to force liquids into the mouth, and frequently strong convulsive movements affected chiefly the upper extremities, occasionally involving all the muscles of the trunk.

I regained rational consciousness about 7 P.M., remaining drowsy and dazed for four hours longer, though I comprehended all that was passing during this time. At 11 P.M. I went to sleep, waking at 7 A.M. next morning feeling none the worse for my night's experience.

Phenomena which I thought worthy of note were: the existence of muscular contractions, followed later by violent convulsive movements, due evidently to action of the drug on the spinal cord. This was one of the most notable features of the whole experience, yet I do not see that such action is at all prominently mentioned in the various articles upon the subject which I have read. This effect was early manifested and was conspicuous throughout. Aside from the acceleration of the pulse-rate and a feeling of fulness in the artery at the wrist, there was just previous to the occurrence of unconsciousness a sense of extreme tension in the abdominal blood-vessels, they feeling distended almost to bursting. This endured for some time. I did not have the feeling of foreboding or fear of impending death, mentioned by Dr. Wood. At no time did I feel fearful of fatal result. After some hours the urine was very much increased in quantity, apparently about double the usual amount being passed for the time between 6 and 11 P.M.; after that it was not noticed as being unusual. No constipation resulted. I thought at one time that the mouth was very dry, as if the secretion of saliva was arrested, but after I became conscious there seemed to be no alteration in this secretion.

These are my own sensations. A physician who saw me while I was unconscious says that my pulse was feeble and respiration shallow, so that he feared collapse. As he applied an electric battery and gave a few injections of ammonia and brandy I presume he really had this impression. Shortly after this I "came to" quite suddenly.

### THE TREATMENT OF INEBRIETY.

BY A. L. BENEDICT, M.D.,  
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It is somewhat inconsistent that the person overcome by one drug should be in a different legal status from that of the one under the influence of another; yet the frequency of alcoholic intoxication, its tremendous financial and social effects, and the organized effort to warn against indulgence in this drug, justify the State in using means which it does not apply to the victim of the morphine or cocaine or other narcotic habit. Thus, while personally admitting that alcoholism is a disease, we believe that it is practically necessary to consider it as a crime also.

It is impossible to draw the line between the fool and the imbecile, between the wicked and the moral pervert, between the man who is quick tempered and the one who is hysterical, between the man of weak will and the one dominated by a habit. Yet the practical appreciation of degrees of difference which cannot be interpreted in any general terms is what gives one a superior understanding of the means to be employed in the treatment of the inebriate. It must be remembered that inebriety is not the same condition in all persons. The practical management of the case depends on the answer to these questions, which are often badly confused by temperance speakers: Does the man drink from love of the taste of liquor? Does he drink from love of the physiological effect? Does he drink because his life is so miserable that partial or complete unconsciousness is pleasanter than sentient existence? Does he drink because, for none of these reasons, alcohol possesses a mastery over him which he cannot shake off? Strange as it may seem to some abstainers, a man seldom uses liquor to excess because he likes the taste of it, as he would like fruit or candy or some more substantial article of diet and, therefore, would eat too much of it. Much more frequently alcoholism is sought to the degree of mild stimulation, and the partaker, having lost some of his power of self-control, then continues to imbibe and passes into a stage which, of itself, has no attraction for him and often is positively revolting to his tastes and judgment when he is capable of sober thought. When a man, or woman, uses liquor for the sake of obtaining oblivion, the hope of cure is small. It is evident that if the individual's personality has become so distasteful to himself that he cannot endure self-association,

that his memories are bitter and tinged with disgrace, the temptation to drown those memories will recur, in spite of treatment; and, humanly speaking, the cure of the alcohol habit is worse than the disease. Cure in such cases is simply a matter of asceticism, unless the primary cause of inebriety has changed to one of the other motives to drink which we have mentioned. In not a few instances persons who like neither the taste nor the action of alcohol, and who are not drawn into the habit from mere social motives, are unable to resist the attractions of liquor. If we could be sure of the good faith of persons who sue for damages claiming to have been influenced by hypnotic power to perform acts contrary to their volition, we should have a close analogue to this form of inebriety. Sometimes the social element seems to be almost the only factor in producing inebriety, the patient suffering relapses only from the more or less deliberate temptation of acquaintances. Sometimes, too, several causes act simultaneously to determine over-indulgence in alcoholic beverages.

If we can be sure that the case in question is of the comparatively rare type of taste-attraction, two courses are open: we can either give some comparatively harmless substance which shall serve as a substitute, or we can make the liquor itself distasteful by combining with it some nauseous substance which shall produce so profound a mental impression as ever afterward to be associated with the taste of the liquor, or we can simply tire the patient of the liquor by giving it protractedly without resting the taste-bulbs by other impressions. The first method consists in the use of some pungent gum or fruity substance or chocolate, the stimulation of the alcohol being represented by iris, capsicum, caryophyllus, etc. The second method is carried out by mixing almost any emetic with the liquor, being careful not to defeat our end by obtaining too prompt emesis. The third method is used in some of the prisons of Scandinavian countries, the culprit and patient being fed with bread dipped in wine till the alcoholic liquor becomes loathsome. It is said that this method is curative even when the cause of inebriety is something else than the gratification of taste. We fear, however, that the loathing would soon disappear, just as it does when disgust at some solid food has been appeased by variety.

In other cases, we believe that the secret of success consists in substituting for the will of the patient some effective means of con-

trol, actual confinement being usually necessary. The Keeley institutes have most happily combined surveillance without actual incarceration, suggestion, stimulation of the patient's own will-power, supporting medication, and medication tended to excite disgust at the taste of liquor. That they are unethical there is no question; that they have done some good no impartial observer can deny; that they have not always cured is established by numerous recorded backslidings. The patient loses his desire for whiskey and apomorphine, and, fortunately, he is a long time in learning that the drink of whiskey and the injection of apomorphine are independent factors which may be separated outside the hospital. He is thoroughly imbued with the fear that a return to alcoholic beverages will prove immediately fatal, and it takes him months before he overcomes this fear or is tempted into testing its validity. Once having learned that the fear is groundless, some relapse into drunkenness; others have so far recovered their will-power and their self-respect that they continue "cured." As regards drugs, strychnine and atropine fulfil all but special indications for supplying the "bracing" effect of alcohol, as far as anything on earth can take the place of alcohol for one who has learned to use it to excess.

We believe that there is urgent need for institutions midway between hospitals and penitentiaries, at which every one can be treated for alcoholism, according to his means. We believe that, without the expense of the so-called "cures" and without their objectionable methods of dealing with ethical questions, institutions may be conducted which shall be under the management of competent members of the regular profession and which will secure good results in relieving those inebriates who really desire to be cured and are willing to lend their own efforts to support those of the physician.

Finally, unprofessional as it may seem to advocate that physicians should make personal use of physiologic and hygienic knowledge, we would remind our readers that our own profession is one of the most important sources of drunkards, and that the danger which has been realized in their case is potentially present in that of every "moderate drinker." Plainly speaking, we believe it is disgraceful that nine-tenths of our profession should use alcoholic liquors purely as beverages.

USEFULNESS OF ARSENIC IN THE  
TREATMENT OF CUTANEOUS  
MALADIES.

BY J. ABBOTT CANTRELL, M.D.,

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Peculiarly—but undoubtedly—arsenic has accepted the foremost place in the armamentarium of the empirical physician, and while this blind confidence has been extended over a considerable space of time it has not been without its results. To-day we are in a fair position to divert it into the proper channels. All through this empiricism the action of the drug has ever been under the critical eye of some acute observer. After many trials we are placed in a position to know just exactly what this or that drug will or will not do. This has been the case with arsenic. All drugs have to pass through the same amount of study, and it is not until they have been tried that we can state their effect. Even to-day this fact can be substantiated in relation to arsenic in the treatment of cutaneous outbreaks. Many affections of the skin are placed under treatment by arsenic and the affected person becomes worse instead of better, and this can be accounted for only by the fact that the drug has been advised injudiciously.

Of the affections of the skin in which arsenic has proved of advantage the number is rather limited, but often we may find that by some complication of the malady it may be wisely incorporated with other measures. I will mention these affections as we progress in our work.

Arsenic is not a new remedy, but yet new fields may be opened to it by more careful observation. That it is a powerful drug and may induce harm if improperly advised is well understood. But carefully given in selected affections it has a decided field of usefulness. This field of usefulness is varied, as will be shown by the many good results following both its internal and external administration. Internally it has a tonic effect, increasing the quality of the blood and thus exerting a restorative influence. Externally it produces inflammation, removes hypertrophies, has a stimulant quality, and destroys abnormal tissue such as is found in epitheliomatous degenerations, lupus, and certain other destructive diseases.

The preparations of arsenic useful in der-

matology comprise most of those contained in the Pharmacopœia, but from choice this list is greatly decreased in the work of certain individuals who have found that this or that preparation gives the most satisfaction in the class of cases presented to their view; but still another class of practitioners may receive good results with the preparations thus discarded by their fellows. Internally the arsenous acid and Fowler's solution receive the greater portion of the prescribing in this country, while the acid with liquor arsenicalis play the more important rôle abroad. The liquor arseni et hydrargyri iodidi (Donovan's solution) and liquor sodii arsenatis (Pearson's solution), both have their friends. Externally the arsenous acid does the greater part of the work, while liquor potassii arsenitis (Fowler's solution) often proves advantageous.

Internally arsenic is advisable in affections of the skin which present hypertrophic manifestations such as psoriasis, or where the blood has become changed as in pemphigus. Externally it removes growths of tissue such as in lupus, thus showing a caustic effect, or where degeneration has occurred as in epithelioma.

*Psoriasis.*—This affection is undoubtedly one in which arsenic performs the greatest number of cures, and one in which the drug usually acts beneficially; but as there are cases in which the drug has little if any effect, it is wise to remember that it is not judicious to advise it where the disease is in its acute stage, or in those cases in which the remedy has been repeatedly used. Failures often occur by its injudicious administration. The dose required is usually one in which the characteristic effect is neared, and usually begins at a small figure, increasing until the desired effect is noticed.

*Lichen Planus.*—This condition also is greatly benefited by the use of arsenic, and whether it is an acute case or whether the affection is of long standing the drug likewise produces curative results. The dose must be sufficient to affect the condition, and may reach large proportions in some cases. I can recall one in which it was found desirable to give three grains of the arsenous acid during the course of twenty-four hours.

*Eczema.*—Arsenic is rarely ever beneficial in this cutaneous eruption, but occasionally cases do arise in which its effect is welcomed. Those cases of long standing in which all indicated measures have been exhausted and those in which we are confronted with

hypertrophic manifestations are both benefited by its judicious administration. Otherwise it usually does positive harm.

*Acne, Acne Rosacea.*—Both of these conditions are affected curatively by the internal use of arsenic, either in the form of arsenous acid or that of the Fowler's solution. In cases of these affections, where there is nervousness present as a complication or where general tonics are called for, the drug is advisable. In those cases in which the type of manifestation is of the popular variety and in which induration is present, or where the pustular form is observed with some thickening around each little lesion, arsenic is demanded.

*Pemphigus.*—Arsenic is one of the few drugs which have any beneficial effect upon pemphigus, and to get this result it is necessary to begin with a small dose and increase until a distinct impression is made, or at a point where it is noticed that the tolerance of the affected person is reached.

*Furuncles.*—The effect of arsenic upon furuncles is that of a tonic upon the general system. It often does considerable good in cases of incessant furunculosis. It assists materially in placing the person in a position to resist the attack of furuncles.

*Mycosis Fungoides.*—From all of the remedies that have been used in the treatment of mycosis fungoides, the selection of arsenic is the only judicious measure. It may be used internally by the system or by hypodermic injection. Beginning with small doses the quantity is increased gradually until one sees some favorable result. But it is not wise to place too much dependence even in this drug, because many failures will result on account of the great fatality of the affection.

*Erythema Multiforme.*—This remedy performs a very important duty in the treatment of multiform erythema of the more chronic stages, and should be found curative in many cases. The dose should vary with the chronicity of the trouble.

*Vitiligo.*—As vitiligo is an affection of the pigment of the skin it will be found that arsenic often produces some slight results in its restoration, but too much dependence must not be given to it.

*Lichen Ruber.*—Lichen ruber is often benefited by the use of arsenic in its early career, but afterwards no effect is produced by its administration.

*Sarcoma.*—Sarcomatous conditions of the skin have been benefited by the internal ad-

ministration of arsenic, but the number of failures far outrank the number of cures.

*Epithelioma.*—In the treatment of epithelioma it is possible that arsenic has its greatest field of external usefulness. This fact is made of great importance by the so-called "cancer doctors," who employ it in the treatment of this condition. Of the preparations usually advised there are a number of ointments which may have decided curative properties, but there is an incessant pain produced by its application, and these cancer doctors state that "it is now drawing out the cancer." Marsden's paste is made with arsenous acid and gum acacia, and is one of the best measures that may be adopted. If patients will stand the pain—and there are a great many that would rather than have an operation—a cure may be expected, but it may be necessary to keep the application in contact for an indefinite period or numerous delays in treatment must be occasioned by this excessive pain, thus prolonging the case for a very long period.

*Lupus Erythematosus.*—The external application of Fowler's solution has cured some cases of lupus erythematosus. The first condition produced by this remedy is an inflammation, which gradually subsides, with possibly a marked change in the lupus area. It cannot be relied on in many cases.

Other than in the diseases mentioned above arsenic has little or no effect, and it is not wise to waste time in prescribing it. Occasionally cases will arise in which it may be judiciously given.

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#### POST-OPERATIVE TREATMENT OF SURGICAL CASES.

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BY THOS. LEIDY RHOADS, M.D.,  
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(Continued from page 877.)

*Retention of Urine.*—The inability of the patient to empty the bladder voluntarily after operation is not an infrequent phenomenon, and whether the retention be due merely to the abolition of the normal reflexes following interference with the central nerve tract, or to the reflex spasmodic action of the sphincters so common after operations about the genitalia, or to obstruction from acute inflammatory engorgement of urethra or prostate, the condition is one that commands the surgeon's urgent attention. The frequency of the occurrence is so noteworthy



as to demand not only a daily inquiry as to the amount of urine passed in the previous twenty-four hours, but also a systematic examination of the suprapubic region by percussion as a matter of routine after all operations of magnitude; for although the element of pain, with marked discomfort, is usually associated with a distended bladder, a subconscious state will remove this monitor of danger, and the voiding of a limited quantity of urine, or a constant dribbling, may be but the overflow from a distended viscus—the incontinence of retention. More often, however, the symptoms of suffering in this condition are so pronounced that early relief is usually sought for by the patient himself.

Shock must always be considered an assignable cause for certain forms of retention, from the accompanying disordered nerve action and the resulting failure of the detrusor muscles; but certain it is that the condition is met with more generally after certain well defined operations, especially those done for the relief of some cerebral and spinal maladies, for anal fistula and hemorrhoids, and for ailments peculiar to the genito-urinary tract itself. It is not uncommon to observe in patients who have had cerebral growths removed, or who have sustained cranial injuries necessitating surgical intervention, that the characteristic globular swelling appears above the pubes within the first twenty-four hours, unless it was previously anticipated with a catheter or other means, and the effects of traumatic irritation to the lumbar spine are well known. The ligation of a single pile and the section of the spermatic cord have brought about a neighboring reflex spasm that persisted for days even under appropriate treatment, and the fresh congestion of the vesico-urethral tract, especially of the prostate gland, which is induced by any operation requiring anesthesia in those who are just recovering from an acute infective inflammation of the urethra, or who are suffering with a latent chronic form of the disease, and which results in a painful retention, is too well known to excite comment. Likewise, the serious significance of the unrelieved condition, the ultimate unavoidable rupture of the bladder, the peritonitis, pyemia, and death, form a clinical picture which it is manifestly the surgeon's duty to avert.

The treatment of the condition will necessarily begin with prophylactic measures before the operation proper, and the surgeon will discover, especially prior to operations near the genitalia, either by careful inquiry, or, if

necessary, by confirmatory urethral exploration, the existence of any obstacle that might later produce complete obstruction. If sufficient time exists, a stricture will be divided or dilated, a urethritis cured, and a prostatic enlargement suitably treated. If the rule were followed by surgeons generally before undertaking serious operations, that it is important that not only should the condition of the kidneys be ascertained by careful preliminary examination of the urine, but that the urinary outlet should likewise be investigated, under strict antiseptic precautions, to determine whether there be any narrowing or pathological alteration of the channel, these precautionary measures would undoubtedly help to reduce the mortality in cases operated upon, who subsequently develop a retention, and which often leads up to a group of inflammatory processes, beginning with a cystitis and ending with a fatal uremia or pyemia.

In considering the treatment of retention after operation, the causes which induce it may be classified as follows:

1. Disordered reflex action.
2. Rekindling of urethral or prostatic inflammation.
3. Sudden closure of a stricture.
4. Acute inflammation or congestion of a hypertrophied prostate gland.

The first class includes those cases of spasmodic retention so frequently met with after operations about the anus and genitalia, and after operations upon the central nervous system, where there is no history of a previous urethritis or of obstruction from stricture or other cause. It is caused merely by a spasmodic contraction of the sphincters, due to loss of control over them from undue irritability either of the central or peripheral nervous reflex; and in the management of these cases an effort should be made to relieve the condition by local applications and antispasmodics, avoiding if possible the passage of instruments, as these tend to increase the irritation and spasm. When it is practicable, the patient should be placed in a hot sitz bath, and directed to pass his water in the bath. The character of the operation will, however, often prevent the carrying out of this plan, and a fitting substitute will be found in a copious hot-water enema, and applications of towels wrung out in hot water placed over the hypogastrium and genitals. These means will usually suffice, especially if the patient hears at the same time the dripping of water behind a near-by screen; but if

this will not produce the desired effect in the course of a half hour, the adult patient is given at a single dose by mouth:

- ℞ Morph. sulph., gr.  $\frac{1}{4}$ ;  
Quinia sulph., grs. x;  
Spts. frumenti,  $\frac{1}{2}$  j.

M.

providing there are no gastric contraindications; and in conjunction with this the Jefferson Hospital mixture:

- ℞ Tinct. belladonna, ℥ xv;  
Tinct. ammon. valerianate, f 3 vj;  
Sodii brom., 3 ij;  
Syr. zingiberis, f 3 j;  
Aque dest., f 3 iij.

M. Sig.: Two drachms in water every hour.

in case time still remains to devote to conservative means. Should gastric irritability contraindicate the administration of the above, a suppository of pulverized belladonna one-fourth grain, and pulverized opium half a grain, may be substituted. If at the end of a few hours after beginning treatment the retention is not relieved by these means, a resort to the catheter is indicated. Catheterization must then be carried out with the utmost regard to surgical cleanliness, for catheterization cystitis, as a result of imperfect antisepsis, is not a rare occurrence after the use of unclean instruments for the relief of post-operative retention, and every surgeon has had more or less difficulty in combating this unfortunate added mischief. In a normal bladder, containing normal urine in normal quantity, Pasteur and Lister have shown conclusively the absence of micro-organisms, which reports are corroborated by the ingenious experiments of Cazeneuve and Livon, and under these favorable conditions the mucous membrane of the urethra and bladder may be handled with a certain degree of impunity, the healthy bladder having power to cope successfully with a moderate amount of infection, should micro-organisms be introduced into its cavity. When, however, the vesical mucous membrane is greatly congested, as well as prostate, ureters, and kidneys, from an acutely distended viscus, and when bloody extravasation has taken place within its walls, as is usually the case, quite a different condition presents itself. The conditions are then ripe for infection, and the deposit of a minute quantity of bacteria on its mucous membrane whose function is thus greatly impaired, may prove to be the starting point of a septic process, which has on more than one occasion terminated fatally. It is accordingly of the highest importance that a rigid and thorough technique be ob-

served in catheterizing the patient, not only in the preparation of the instruments employed, but also in the cleansing the hands of the operator and the external genitals of the patient as far as practicable, precisely the same care being exercised as though an open wound were to be inflicted.

It is an unfortunate fact that although the bladder is devoid of bacteria, quite the reverse condition exists in the urethra, and that in introducing a catheter into the bladder the instrument must pass through a canal rich with micro-organisms. The researches of Lustgarten and Rovsing have shown that in the normal urethra myriads of organisms exist, principally the staphylococci and streptococci of the pyogenes type, which will be a particular menace to catheterization, especially when the function of the bladder wall is below par; and so far as is known at the present day there is no germicide that is capable of completely removing these pathogenic organisms from the deep follicles of the urethra. However, clinical experience has taught us that whereas it is not common to have a septic condition follow the use of an unclean catheter in the cases under consideration, it is quite rare, when the external parts and instruments are thoroughly disinfected, to have any unpleasant symptoms develop, so that the significance of the urethral flora is not as grave as might at first appear.

In selecting a suitable catheter for these cases, the soft rubber instrument of Jacques will always stand foremost, as it is the least irritating of the many varieties, but with its peculiar adaptability comes the difficulty with which it is made sterile. Of all the numerous methods devised to accomplish this disinfection, that employed by Professor Horwitz at the Jefferson Hospital has proved to be the most satisfactory. The rule is here followed that cleanliness in dealing with the bladder is just as imperative as in the lying-in chamber, for the possibility of infection is quite as great, and only those methods are employed that have stood the rigid test of long-continued investigation. Catheters are kept on hand in metal boxes, in which sterilization is constantly taking place, so that they are ready for instant use, a sufficient number (eight) for one patient being kept in a single box.

In rendering these instruments aseptic, much stress is placed upon the primary mechanical cleansing with soap and water. They are first scrubbed with Johnston's ethereal soap to remove adherent oil and

dust, and are rinsed thoroughly by holding them under a tap of hot boiled water, until the caliber of the instruments have been freely irrigated. They are then dried with a clean towel or gauze, and placed in the vaporizing box of Guyon, in which a derivative of formol, the antiseptic value of which drug was first pointed out by Trillat, is used as the disinfecting agent. Formol is a concentrated solution of formic aldehyde, of forty-per-cent. strength, and if concentration of the latter is pushed to the extreme limit by evaporation, there is left a white powder known as trioxymethylene, which if exposed to the air gives off dry vapors of formic aldehyde, a powerful antiseptic agent especially valuable in the disinfection of catheters, since it does not destroy the surface with which it comes in contact. By making use of this method the objectionable antiseptics formerly used, in which the instruments were submerged for indefinite lengths of time, and cleansed imperfectly, frequently proving irritating to the urethral canal, are dispensed with. Eight catheters having been dried, they are placed in the metal box above mentioned, which is forty-two centimeters long, ten centimeters wide, and ten centimeters high, and is hermetically closed by a metallic cap with a rubber washer. This box contains two movable shelves made of perforated metal, and in the bottom is a frame upon which is stretched a piece of cloth or absorbent lint designed to receive the trioxymethylene powder, which is sprinkled in a shallow layer over the entire surface, and the temperature of the surrounding atmosphere is kept at about 60° F. Twenty-four hours is required to sterilize large calibered catheters, forty-eight hours for catheters of fine caliber. The slow evaporation of the trioxymethylene keeps the atmosphere dry, thus avoiding softening of the instruments. The number of catheters selected (8) is usually sufficient for all cases, even should the retention continue over a number of days, the patient being catheterized every six hours. Four catheters are placed upon the upper shelf and four upon the lower, the trioxymethylene powder spread in place, and the box stored away until the catheters are needed. Each time catheterization becomes necessary one instrument is taken from the upper shelf, and having been used, is put aside; the next day the four catheters that have been used are scrubbed and rinsed, dried thoroughly, and put back on the upper shelf, those on the lower shelf being next

utilized, the cap of the box being removed and replaced as rapidly as possible.

The disinfection of the hands of the surgeon and the genitalia of the patient is of no minor importance. The surgeon scrubs his hands and forearms with soap and water, rinses them with sterilized water, carefully cleanses the nails, and finally uses the brush in the mercuric chloride solution 1:1000, or other antiseptic of equal germicidal strength. Regard for the most scrupulous care in this particular is imperative; the so-called antiseptics of the "bichloride doctor" (he who merely dips his uncleansed hands into bichloride solution, and considers them disinfected) is a surgical myth. No less an attention to detail will suffice than that which is required where other important cavities are invaded by operative means. The penis in the male is cared for in the same manner, special attention being given to the glans and foreskin, and the orificium urethrae, which are carefully mopped with pledgets of sterile cotton wet with mercuric chloride solution 1:1000, after the preliminary use of soap and water; and if especial caution is heeded the urethra may be irrigated with a boric acid solution ten grains to the ounce. Aseptic towels are spread over the patient's thighs and abdomen, leaving the penis uncovered, a catheter is selected from the Guyon box, rinsed in boric acid solution, lubricated with liquid vaselin which has been sterilized by heat (glycerin and carbolic solutions irritate after continued use), and passed into the bladder. If much difficulty is experienced in passing the soft rubber instrument, the device of Professor Brinton is made use of by passing a thin whalebone previously disinfected by scrubbing it with soap and water and with bichloride solution, into the catheter to the eye in order to stiffen the shank and leave the point free. When the point of the catheter approaches the bladder the whalebone is withdrawn an inch to avoid possible injury to the bladder wall from projection of the end of the whalebone through the opening in the catheter. The instrument is then pushed into the bladder, the whalebone removed, and the urine drawn off into a vessel. There is no danger in emptying the bladder completely in these cases, and as there is usually an associated polyuria, the catheter must be used every six hours until spontaneous evacuation occurs. While the dangers of risking an infection are present every time the instrument is used, it has been happily pointed out that "when practised with due

regard to cleanliness these catheterizations prevent cystitis, since they relieve the venous engorgement which is a most potent predisposing factor to the infection" (White and Martin).

In women the same methods must be used in relieving the retention, though instead of making use of the soft rubber instrument the ordinary glass catheters can be used, after being sterilized by boiling. It is particularly of importance that the labiæ and region about the meatus be thoroughly cleansed before passing the catheter, and that this should not touch the neighboring structures before entering the urethra; hence the wisdom of using the catheter by the aid of sight and not depending upon the sense of touch alone. Catheterization thus performed is devoid of any serious consequences, even though it be practised for a number of days. The patient should, however, all the while be encouraged to empty the bladder as soon as possible without the use of an instrument.

(To be continued.)

#### CHELIDONIUM IN CANCER.

A report of a discussion on this subject in the Russian Pirogoff Surgical Society is published in *Vratch*, No. 32, 1897. Shulgin treated five cases of cancer by internal administration and subcutaneous injection of extract *chelidonii majoris* into the growth. The injections were made at intervals of one and two days with a fifty-per-cent. solution of the extract during about three months; at the same time fifty grammes of the extract was given internally every day for fifty days. Reaction was only local. The growths became more succulent, were breaking down, and a gray fluid and detritus discharged from the interior. A general reaction was noticed in a sixth case, that of an out-patient, a habitual drinker, after two injections. Chelidonium must not, in Shulgin's opinion, be regarded as a specific for cancer, but its destructive action upon it cannot be denied. Religioki made injections at the hospital at Briansk with fifteen grammes of a fifty-per-cent. solution every four or five days, not into the substance of its growth, but into its neighborhood, giving at the same time internal doses of seventy-five to ninety grammes daily. He observed a case of cancer of the breast, the size, consistence, and shape of which became totally changed after internal administration of the drug for six weeks, and it could afterwards be easily removed by oper-

ation. A microscopic examination showed shriveling and breaking down of the cells in the growth, one part of the white corpuscles constituting a line of demarcation between the dead and the healthy tissue, the other infiltrating the growth, which was being converted into detritus, thus favoring the breaking down of the new growth cells. Chelidonium, he thinks, has a beneficial effect in many cases of cancer. Minin, who tried the remedy in four cases (two of carcinoma esophagi, one of cancer of the liver, and one of cancer of the tongue), found chelidonium of no use. Trojanof had not seen any benefit of it in cases of inoperable cancer; the patients were made rather worse owing to the reaction. The diminution in size of the growth is not to be doubted, but this is due to absorption of the products of inflammation set up by the injections. Turner reserves his opinion, and thinks that in cases of cancer of the lip thorough extirpation is to be preferred. Vreden thinks that the treatment with chelidonium does not respond to the fundamental condition of therapeutics—*non nocere*. The injury caused by the general reaction is undoubted. Vubbotin, who has tried chelidonium in operable cases, considers it worthy of further trial. Zenenko, in eleven cases of cancer of the alimentary canal, did not notice any benefit from its internal administration in doses of sixty to ninety grammes. The patients complained of increased pains and difficulty of digesting food. The subcutaneous application in some cases of cancer of the breast and lower lip caused local and severe general reaction, with chill and prostration, which lasted for twenty-four hours. He considers chelidonium to be like caustic—a powerful local irritant, causing necrosis. Vertogradof tried the effect of injections (having been made aseptic) upon a healthy man (himself) and found it caused a powerful local reaction; inflammatory edema of the size of the palm of the hand, which disappeared after a few days, leaving the skin folded and covered with rhagades and very painful. On the spot where the injection was made there remained a nodule for a long time. The general reaction is not less severe. Ratimoff has noticed cachexia develop and the patients lose weight under treatment with chelidonium. The induration of the base of the cancer remains unaltered; the injections are very painful. He also thinks the remedy acts merely as a caustic.—*British Medical Journal*, Sept. 18, 1897.

# The Therapeutic Gazette

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## Leading Articles.

### THE MECHANICAL TREATMENT OF LOCOMOTOR ATAXIA.

Whenever a new plan of treatment is suggested or recommended for the treatment of a grave disease which is considered incurable it is at once, and very properly, tried and tested by almost every physician who has under his care cases of the malady and the necessary drugs or apparatus for the test. Notable examples of such tests might be cited did space permit, and every one who has been interested in medicine for a few years can count upon his fingers instance after instance in which a remedial measure has been advanced by some clinician and after a period of trial has become obsolete. These experiences have caused therapeutic nihilists to doubt the value of every new method of treating disease and to laugh at the enthusiasm of their fellows who have tried the novel plan. As a matter of fact the so-called excess of enthusiasm to try something new is praiseworthy; by such trials the good is speedily separated from the useless in therapeutics, and we quickly arrive at the true value of a so-called discovery.

Sometimes the plan proposed is cast aside because it is found utterly useless, but far more frequently it is retained by the well-informed as being suitable for a given number of cases which present certain lesions or symptoms. This is quite true of the so-called "suspension treatment" of locomotor ataxia. Heralded as a cure-all for a disease which from its very nature must be incurable, it was speedily found to be useless for the purposes of cure, futile for the arrest of its progress in active cases, and useful only for the relief of certain annoying symptoms in some instances.

This suspension treatment, by means of which the patient was swung off his chair by a harness and pulley attached to his head, was supposed to stretch the spinal column and the cord and so to produce its good effects, but this was never positively proved by accurate experimentation, and interest waned till it seemed unlikely that any one would determine what the actual physiological effect of the plan might be. Recently, however, De la Tourette and Chipault have published in the *Gazette des Hôpitaux* (Nos. 49, 51, and 52) a research entitled "True Elongation of the Spinal Cord, and its Application to Locomotor Ataxia; with Experimental and Therapeutic Researches." Their experiments on the cadaver failed to show that actual elongation of the spinal cord took place during suspension. Thus they state that though the spinal column may be stretched one centimeter the cord is entirely unaffected, and they believe that in the living subject whose vertebral muscles are active even this elongation of the spine fails to take place.

Their other conclusions have been well summarized by Montgomery in the *Medical Chronicle* of Manchester. The first experiments, made on the spine alone, showed that the anterior wall of the canal was elongated by *flexion* to an extent varying from 3.1 to 4.3 centimeters—about one-twentieth of the whole length of the column. The various segments of the column were very differently affected. Thus, in the first subject, the whole elongation of 3.1 centimeters was divided up into eight millimeters for the cervical vertebrae, four millimeters for the upper ten dorsal, twelve millimeters for the next five vertebrae, and seven millimeters for the four last.

These figures for the other two subjects were, for a total elongation of 3.5 centimeters, respectively six, six, fifteen, and fifteen millimeters; and for a total elongation of 4.3

centimeters, ten, six, fifteen, and twelve millimeters.

Passing next to the cord itself, the elongation measured outside the unopened dura was, in the first experiment, 1.7 centimeters. It seemed, however, preferable to expose the cord directly to measurement; and, when this was done, five experiments were made, with the following results:

1. The total elongation of the intradural nervous elements was, respectively, 1.3, 1.6, 2, and 1.1 centimeters.

2. This total elongation was divided between the cord itself and the cauda equina, as follows:

| Total elongation. |         | Cord. | Cauda equina. |
|-------------------|---------|-------|---------------|
| 1.....            | 1.3 cm. | 7 mm. | 6 mm.         |
| 2.....            | 1.2 cm. | 7 mm. | 5 mm.         |
| 3.....            | 1.6 cm. | 9 mm. | 7 mm.         |
| 4.....            | 2.0 cm. | 9 mm. | 1.1 cm.       |
| 5.....            | 1.1 cm. | 7 mm. | 4 mm.         |

It is thus seen that while the cord elongation proper is fairly constant, that of the cauda equina varies noticeably in different subjects.

3. The various segments of the cord are differently affected. The maximum elongation was of the region between the twelfth dorsal and first lumbar nerves.

From their anatomical experiments the authors conclude that "while suspension of the spine produces merely insignificant elongation of the cord, flexion, on the other hand, in a subject with the knees extended, lengthens it by about one centimeter, almost all the effect being on the posterior half in the region of the first lumbar nerves."

*Application of these Experiments in the Treatment of Locomotor Ataxia.*—In brief, the patient is placed in the sitting posture on a narrow table, the pelvis fixed, and the legs strapped down in the extended position. By means of a collar attached to the neck and shoulders any required amount of flexion of the body is produced by a cord and pulley.

In the majority of cases the force used, as measured by a dynamometer, varied between sixty and eighty kilogrammeters. The maximum is, however, never employed at first. The sensation becomes, after a very short period, acutely painful, but after a few applications the patient is able to bear the operation comfortably. The sitting should not last more than eight to ten minutes, and both the flexion and its relaxation should be most gradual.

The results obtained by the method thus described must be compared with those of suspension.

Generally speaking, the suspension treatment in selected cases caused decided amelioration of symptoms in from twenty to twenty-five per cent.; in thirty to thirty-five per cent. the improvement was slight; while in thirty-five to forty per cent. there was no benefit noted.

These were the results obtained under Charcot's direction in the Salpetriere from 1888 to 1890. But soon after this latter date the method passed into disfavor.

By flexion forty-seven cases—thirty-nine males and eight females—were treated. Naturally the cases were selected, both this and the suspension process being contraindicated in very slowly progressing, very acute, or very late cases. Those best suited for treatment are the sufferers from lightning pains, visceral crises, anesthesia, and bladder trouble, the other signs of disease being not very pronounced. Of the forty-seven selected cases, twenty-two were very much improved in all their symptoms, and more especially as regards incoordination, pains, crises, anesthesia, and retention of urine. For some reason incontinence was not so favorably influenced.

Fifteen other cases were benefited, but the improvement was limited to one or two symptoms alone.

Ten cases—less than twenty-five per cent.—showed no improvement, in contrast to the thirty-five to forty per cent. of recorded failures after suspension.

None of this series of cases underwent less than fifteen or twenty seances. In general, the treatment should not be prolonged for more than three or four months.

#### THE TREATMENT OF IDIOPATHIC SALIVATION.

Idiopathic salivation is certainly rarely met with by the general practitioner, and even excessive ptyalism due to the ingestion of drugs is at this day not of frequent occurrence, chiefly because the mercurial preparations are more carefully administered and physicians usually give instructions and prescribe mouth-washes which tend to prevent this distressing complication of the treatment of syphilis. Now and again, however, the physician's therapeutic resources are tested to the utmost when he comes face to face with what has been called idiopathic salivation as it occurs in childhood. In these cases a careful examination of the mouth will fail to reveal any inflammation or indication of the presence of stomatitis, yet the

patient will be a great annoyance both to himself and to his care-takers by reason of the constant dribbling of saliva from his mouth, which wets his clothes and even produces by constant maceration an eczematous condition of the skin of his chest. In a case which has recently been reported by Dr. Jordan in the *Birmingham Medical Review* it is stated that the child had always dribbled saliva freely, particularly when cutting his teeth. The dribbling continued at night so that the pillow was wet, although the saliva was not as profusely secreted as in the daytime. Excepting for this one symptom the patient seemed to be in perfect health. The teeth were cut normally, but the first molars at the time the child was seen were undergoing decay. Other children in the family had no such tendency towards salivation. The patient was four years of age. Another case, a boy aged two and a half years, was brought to Dr. Jordan with exactly the same symptoms and the history that he had commenced to dribble during teething and had never ceased. His teeth were in a healthy state, but his tonsils were somewhat hypertrophied. No other lesion was found.

Jordan points out that this somewhat rare condition has been reported by other clinicians. Thus Finlayson has reported a case, and Bohn in an article in Gerhard's *Handbuch der Kinderkrankheiten* asserts that the salivation usually has its origin at the age of three or four months, or with dentition, and usually continues until dentition ceases. He refers to cases occurring in children of from two to eight years who were otherwise healthy. In most instances the condition ceases during the night, and in one instance it only appeared when the entire attention of the child was absorbed by something of interest. Although iron benefited some of Bohn's cases which were anemic, he does not think that the condition depended upon anemia, but was rather an evidence of a neurosis. The treatment which Jordan instituted consisted in the administration of full doses of belladonna administered persistently for a period of five months, until at the end of that period the child was taking as much as twenty minims of the tincture of belladonna three times a day. At this time the salivation was, as he expresses it, in undisturbed progress. In the other cases, in which the treatment by belladonna was used, there were no definite conclusions as to the value of the drug reached. In Finlayson's case, where

the discharge of saliva reached about thirty ounces in twenty-four hours, belladonna was used and the child was cured in about a month.

We have called attention to this subject because we have known of at least one case in which the administration of ten grains of camphoric acid given once or twice a day, in capsule, gave great relief. A medical friend who had tried almost every remedy commonly considered as antisecretive, appealed to us to suggest something which might be of benefit to his patient, and on camphoric acid being tried the condition was very promptly brought under control.

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#### THE BENEFITS OF ANTAGONISTIC ACTIONS OF MEDICINES.

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To the physician of fifty years ago, who based his therapeutic efforts upon empiricism alone and was entirely devoid of any information regarding the physiological effects of drugs upon separate and healthy organs, much of the advantage now in the hands of his modern followers was impossible. The strides made by pharmacologists during more recent times, and extending over a sufficient number of years to be worthy of confidence, have added to the results of bedside experience complete and reliable experimental facts, and have explained why and how this or that remedy causes certain effects when administered. Thus the slow pulse due to digitalis we know to be due to stimulation of the vagi, and we can use this drug with direct benefit in those cases where we have reason to believe that the inhibitory nerves of the heart are not sufficiently active. Again, we recognize the fact that strychnine is contraindicated in conditions of acute irritation of the spinal apparatus, because it eventually stimulates this part of the nervous system, and for this very reason we use it when we believe the spinal cord to be in need of stimulation.

A knowledge of the action of drugs on particular organs also aids us in combining them in such a manner as to accomplish definite results in one organ without interfering with the functions of others, because in respect to others their effects are antagonistic. Thus in cases of cardiac irritability the use of digitalis in small doses quiets the heart by its effect on the vagi, while the addition of a little aconite prevents the digitalis from overstimulating the heart muscle itself.

In other instances where it is desirable to get the full diuretic or cardiac effect of caffeine, and full doses of the drug are needed to produce such an influence, the coincident nervous and mental excitement can be put aside by the use of bromide of sodium, which, though it quiets the nervous system, has no effect on the heart or kidneys.

Our attention has been called with renewed interest to this subject by a valuable laboratory and clinical research recently published in the *Journal of Physiology* by C. R. Marshall upon the "Antagonistic Action of Digitalis and the Members of the Nitrite Group." After reviewing the various standard researches which have been made upon these remedial substances, he proceeds to his study and finds that in practically all cases the nitrites can be relied upon to reduce or prevent any tendency to high arterial pressure induced by digitalis. This supports the clinical fact already well known that a nitrite and digitalis can be combined in cases of high arterial pressure with great advantage. Marshall's research also shows even more conclusively that though the nitrites prevent the high tension of digitalis, the latter drug does not possess a similar degree of power in overcoming arterial relaxation or lowered tension when it is produced by a member of the nitrite group.

Similar instances of the advantage of combining drugs for antagonistic purposes might be cited, but these are sufficient for our purpose. A recollection of the particular selective affinity of drugs for certain organs and their antagonisms, and the practical application of such recollections, will often greatly benefit the patient and prevent him from suffering from disagreeable effects of remedies which necessarily ensue when a single drug is given, for scarcely any drug exists but exerts an action on more than one organ of the body.

#### THE PREVENTION OF CINCHONISM.

In a number of issues of the THERAPEUTIC GAZETTE within the last few years we have referred to the untoward effects produced by various drugs, and have called attention in particular to the disagreeable after-effects which often ensue when quinine is administered. With the more moderate of these effects nearly every one is familiar, for the laity often prescribe quinine for themselves in such large doses that they speedily experience the tinnitus, or deafness and headache,

which full doses of this drug so readily produce. There are two ways in which these disagreeable symptoms may to a certain extent be modified by combining with the quinine other remedies. The oldest way, and the method which is perhaps resorted to most frequently, is the administration with each dose of quinine of five or ten grains of bromide of potassium or bromide of sodium, which seem, to a considerable extent, to modify the aural symptoms which we have mentioned. If the dose has been a very large one and the patient is particularly susceptible to quinine, it may be well to give at the same time with the quinine a little fluid extract of ergot for its tonic effect upon the cerebral and meningeal blood-vessels. Another method for the prevention of cinchonism is that which has been suggested by Aubert within the last few months. He asserts that the administration of atropine in the dose of  $\frac{1}{16}$  to  $\frac{1}{8}$  of a grain with each dose of quinine greatly modifies the symptoms, and in those cases where the quinine was given for the relief of the neuralgia aided the quinine very materially in relieving the pain. It must be remembered, on the other hand, that in those who have a susceptibility to atropine, the dryness of the mouth and throat and the disordered vision which may ensue after this dose of the drug might prove more uncomfortable to the patient than if the quinine had been administered alone.

#### THE VALUE OF ANTIDIPHtheritic SERUM IN DISEASES NOT DUE TO THE KLEBS-LOEFFLER BACILLUS.

While it is probably true that in antidiphtheritic serum we possess what is practically a specific in the treatment of true diphtheria, provided it is administered before the disease has produced so much destruction of vital organs that recovery is impossible, it would also appear from recently published statements of medical clinicians that it can be used in other cases than those which are suffering from this specific infection; and within the last month two papers indicating that antidiphtheritic serum has a wider application than we have been wont to accord it have appeared. One of these is by Revilliod in the *Revue Médicale de la Suisse Romande* of November 20, 1897, an abstract of which we publish in our Progress columns, and the other is in the *British Medical Journal* of December 11, 1897, published by Dr.



H. A. McCallum, the professor of physiology in the Western University, of London, Canada.

In the first of these papers the author argues that the increased secretion seen after the injection of serum from all the mucous membranes and other clinical facts in regard to its physiological action led him to employ antidiphtheritic serum in the treatment of asthma, and he believes that both the iodides and the serum do good by eliminating from the body of asthmatics certain noxious substances which produce the attacks. In other words, the antitoxin of diphtheria is used, under these circumstances, not on account of any supposed antitoxic property, but rather because of its power of increasing secretion and eliminating poisons from the body. In one case the patient had asthma for six years, yet marked amelioration followed the first injection, and after ten injections made during five months the patient was completely cured. In McCallum's paper, which is made in the nature of a preliminary report, he states that the serum cleanses the tongue of typhoid patients, lessens the constipation, and increases biliary secretion, and that it increases urinary flow, improves the action of the heart and the tone of the blood-vessels markedly, increases leucocytosis and the coagulation of the blood. We refer our readers to the abstracts from these papers which we publish in the Progress columns.

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*RUPTURES OF THE VISCERA AND THEIR  
RELATION TO SURGICAL SHOCK.*

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Dwight in the *Boston Medical and Surgical Journal* of August 19 and 26, 1897, calls attention to the fact that fatal shock following trauma is nearly always the result of gross, often extensive, visceral lesions, as demonstrated in his exceptionally wide experience in post-mortem examinations. He holds that visceral ruptures are far more common than is generally supposed, and that pronounced constitutional symptoms so often attributed to nervous perturbation are due either to hemorrhage or to other direct or indirect effects of such lesions. In the records of the Boston City Hospital for the last fifteen years he has collected seventy-nine cases of abdominal injuries in which the diagnosis of rupture was not made and in which no definite lesion was found to account for the symptoms which were present. Of these

sixteen died. Shock was pronounced in forty-nine of the cases. Tenderness on deep pressure persisting for from four to sixteen days was noted in thirty-nine, and in the same number there was persistent vomiting. As showing how often the amount of injury inflicted is much greater than is at first apparent, Dwight notes that of 511 cases of fractured ribs forty died, twenty-nine within three days. As a result of nine autopsies it was found that three died from hemorrhage, three from rupture of the lung, and three from rupture of the liver and spleen.

The diagnosis of visceral rupture is rendered difficult by the fact that the traumatism which produces them is less likely to cause external signs. Dwight has encountered most frequently rupture of the liver. Death is usually due to primary hemorrhage. It is extremely difficult to make the diagnosis. Rupture of the kidneys is much commoner than is taught in the text-books. The diagnosis is dependent in part upon the appearance of blood in the urine, although the absence of this sign would not exclude the injury. Many of these cases recover, others result in lumbar abscess. Exceptionally peritonitis may result from rupture of the overlying peritoneum. Rupture of the spleen was comparatively rare in the author's cases. Death is likely to ensue from primary hemorrhage or from secondary subdiaphragmatic abscess. The pancreas is from its position rarely involved. Intestinal ruptures usually occur in the jejunum or ileum. Death may result from hemorrhage, but is usually due to peritonitis. Rupture of the stomach is less common and more rapidly fatal, often from hemorrhage. Rupture of the lungs may occur without injury to the ribs and without signs of external violence. Contusions of the lung substance or hemorrhage into it are common, and in extreme cases one or more lobes may be completely macerated. These injuries when serious are commonly associated with injuries to one or more organs. The heart ruptures mostly occur in the right ventricle.

Dwight, among his conclusions, states that the lesions of various organs in all their degrees of severity have one result which they present to a greater or less degree in common—that is, hemorrhage—and that death in all cases, except in those which—like the intestines, bladder, and heart—may result fatally in a way peculiar to themselves, comes as a result of that hemorrhage. Shock to a greater or less extent is present in nearly

every case after these common accidents, which not infrequently will result in ruptures of the viscera. If it be true that in no considerable number of cases the group of symptoms commonly described by the word shock is due to hemorrhage, it is of the greatest importance that such patients should be treated for concealed hemorrhage and not for shock.

Nearly every hospital surgeon of large experience will agree with Dwight that severe shock following traumatism is a certain indication of visceral lesion. None the less it is quite certain that pronounced, even fatal, shock may develop in the absence of demonstrable lesions, though this must be regarded as most exceptional. Moreover, there are a sufficient number of cases reported, and it is the occasional experience of nearly every surgeon, to show that rupture of the viscera may occur with but slight degree of shock and that the hemorrhage resulting may be of so little moment as not materially to influence the ultimate outcome of the case. This also may be regarded as exceptional, though not so rare as the cases of fatal shock without demonstrable lesion. It is certainly true that a rapidly deepening shock following trauma to the body without external injury is usually due to visceral lesion and consequent hemorrhage, and provided the injury has been such as is likely to cause visceral rupture the constitutional symptoms might be sufficiently indicative to justify surgical interference.

Surgical intervention practised under such circumstances is likely to be successful in a very small percentage of cases, and undoubtedly hastens the fatal issue when no conditions are found which can be mechanically remedied. None the less it is probable that were, for instance, cases of abdominal contusion which had been followed by agonizing pain and deepening shock subject to a rapid exploratory celiotomy, the ultimate mortality would be much less than is the case with purely conservative treatment. Under such circumstances during operation the patient should receive the appropriate treatment for profound shock, and the operation, if this is possible, should be conducted upon a hot water bed and with the temperature of the operating room above 80°. The remedies most likely to be serviceable are strychnine in full doses and subcutaneous or intravenous injections of normal saline solution when it is evident that a large quantity of blood has been lost. It should be remembered that the quantity of saline used is not definite, but

that it is slowly injected until the pulse regains its volume. This may require over three pints. The intra-abdominal manipulations should, of course, be performed as rapidly as practicable, and subsequently inhalations of oxygen or even artificial respiration may be required for many hours.

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## Reports on Therapeutic Progress

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### *ORTHOFORM. A NEW LOCAL ANALGESIC.*

It has been found by Dr. EINHORN and Dr. HEINTZ, of Munich, that the compound methylic ether of amidoxybenzoic acid is possessed of remarkable anesthetic, or rather analgesic, properties when locally applied. To this substance the name of "orthoform" has been given. It is a white crystalline powder without taste or smell, and it dissolves slowly in water. Unlike cocaine it is non-poisonous, and though its analgesic action is somewhat tardy in showing itself, it is very much more persistent than that of the older drug. This prolonged effect is very valuable in the case of painful sores or wounds, more especially in burns and in fissures of the lips or nipples. It may be applied to mucous membranes in powder or as an ointment. Orthoform diminishes the secretions and is antiseptic. Its local action may be taken advantage of for internal administration in painful ulcers of the stomach, whether these are or are not of a malignant nature. The hydrochlorate, which is very soluble, is too acid for use as a hypodermic injection or for applying to the eye, but may be employed for internal administration or for urethral injections. In a case of gleet a ten-per-cent. solution was well borne and gave relief from pain for many hours, but it provoked severe reaction in a case of acute gonorrhea—here, however, the discharge ceased completely in four days. As to the dose, a saturated solution of orthoform in water at ordinary temperature is suitable for local application, and seven and a half grains of the hydrochlorate, or even more, may be given internally several times a day without any inconvenience. It appears, therefore, that this substance and its salt may be considered entirely non-poisonous. Indeed, in a case of carcinoma of the face more than 700 grains was locally applied during the course of a week without any injurious effect, great relief being obtained.—*The Lancet*, Sept. 18, 1897.

**STREPTOCOCCIC INFECTION AND MARMOREK'S SERUM.**

In a bibliographical article on this topic published in the *Journal of the American Medical Association* of September 11, 1897, GEORGE W. COX goes over much of the evidence concerning the value of antistreptococcic serum, and in concluding refers to the use of Marmorek's serum in cases of tuberculosis. He points out that a little more than a year ago Dr. Chas. T. McClintock, of Ann Arbor, read a paper before the Michigan State Medical Society in which he predicted that "the antistreptococcic serum would find its greatest usefulness in cases of tuberculosis. That was the first published utterance to this effect, and Dr. McClintock has proved himself a prophet. During the month of July, 1896, Dr. W. H. Weaver, of Chicago, used Marmorek's serum in three such cases, reporting them in the *Journal of the American Medical Association* of September 5, 1896. That was the first published report of cases treated in this way. Since that time a number of cases have been so treated by physicians in different parts of the country, but little or nothing has been published concerning them—why, it would be difficult to say. The importance of the subject would seem to merit more attention than it has received. In all the published reports, however, and in all received from private sources, there has been a pleasing unanimity on the action of the serum. Without exception it has done all that was expected of it; that is to say, it has invariably destroyed the streptococcus microbe and thus freed the case from a disagreeable and dangerous complication. Having thus converted the case from one of mixed infection into one of simple tuberculosis, the system is left in better condition to resist the ravages of the tubercle bacillus, and consequently is more likely to respond to appropriate treatment for the destruction of this germ. The serum should be used in those cases only where the bacteriologic test shows the presence of the streptococcus microbe. In all such cases there is liable to be considerable cough, purulent expectoration, night sweats, high temperature, insomnia and anorexia, all of which are greatly modified and sometimes disappear altogether under the influence of the antistreptococcic serum. Oftentimes the train of symptoms just enumerated will be found where there is no streptococcic infection. These, as a rule, are very grave cases, and the serum treatment is not indicated. Lack of space

forbids a detailed account of the progress of the different cases in which the serum has been used; but suffice to say that while some of them were hopeless as far as ultimate recovery was concerned, yet without exception there was such decided amelioration of distressing symptoms as to lead to the conclusion that earlier employment of the serum would at least have resulted in greatly prolonging life.

Marmorek's serum should always be used by hypodermic injection into the cellular tissue. If due antiseptic precautions are observed and ordinary skill used in its administration, it is free from danger, and the dose is practically without limit.

In all grave cases, such as puerperal septicemia, and especially if treatment has been considerably delayed, an initial dose of thirty cubic centimeters is advised; this may be followed by doses of ten cubic centimeters or twenty cubic centimeters every twelve or twenty-four hours, according to the symptoms.

In ordinary cases of erysipelas the initial dose is twenty cubic centimeters, and in many instances may be all that is required. However, it may be repeated once or twice in twenty-four hours if necessary. In the complications of diphtheria and scarlet fever one dose of ten cubic centimeters will be found sufficient in the vast majority of cases. In the mixed infection of tuberculosis the dose should ordinarily be ten cubic centimeters, to be repeated every second or third day until the microbes have disappeared from the sputum, usually requiring from four to six injections.

In all other affections, such as acute abscesses, pelvic inflammations, chronic inflammation of the middle ear, and in suppurative processes generally where the streptococcus germ is found, the dose must be regulated according to the exigencies of the case.

Children bear the serum remarkably well, and ten cubic centimeters is the usual dose for children of all ages.

Almost any part of the body where the skin is not tightly drawn may be selected for the injections. In adults preference has usually been given to the lumbar or gluteal regions, while in children the lower abdomen, a little to the right or left of the median line, is more frequently selected. A perfectly sterile syringe and needle should be used; and unless some special condition exists to call for more thorough cleansing, the site may be sufficiently prepared by a careful bathing in alcohol.

The author draws the following conclusions from the use of the serum: (1) In Marmorek's serum we have a remedy of the greatest therapeutic value; (2) so far as known, it is only applicable to streptococcic infection, simple or mixed; hence it naturally follows that: (3) an early bacteriologic examination should be made in order to settle the question of diagnosis and point the treatment; (4) its action upon the microbe is rapid and certain if given in adequate doses.

#### DRUGS WHICH SHOULD NOT BE EMPLOYED DURING PREGNANCY.

In an article on this subject in the *Journal des Praticiens* of August 28, 1897, M. BOISSARD remarks that in a general way all therapeutical intervention should be forbidden when it is followed by abortion or premature labor. Emmenagogues, he thinks, should be banished from the treatment, not only of pregnant women, but in the case of those in whom there is a suspicion of the possibility of the beginning of pregnancy.

According to him there are no abortive drugs in the strict sense of the word, but there are drugs which given in toxic doses may cause at the same time both abortion and the death of the woman; these drugs are therefore useless and inefficacious, and there is danger of poisoning to the woman. With regard to the ecboic and oxytocic drugs, they belong to another class, and have the property of arousing and aiding the progress of uterine contractility or of strengthening the intensity of the uterine contractions after they have been aroused; the action of the latter is certain, that of the former doubtful.

The action of quinine sulphate and of sodium salicylate is not to provoke abortion or premature labor, says M. Boissard; that would be very much to be regretted, as obstetrical therapeutics would be deprived of two valuable drugs. Drugs that have that property may, however, be advantageously employed in cases of contraction of the pelvis, in which it is expressly indicated to interrupt the course of pregnancy.

The abortive or ecboic action of quinine sulphate, says the author, has been discussed by many writers, whose investigations and experiments show that this drug should not be considered as an abortive agent; in several cases in which there was contraction of the pelvis and it was necessary to interrupt the pregnancy, this drug was given every day in large doses without producing the least

symptom of labor, yet it was given in amounts that, if not toxic, were at least sufficient to cause quinine intoxication. M. Boissard thinks that there should be no hesitation in employing quinine sulphate during pregnancy whenever symptoms of malarial infection manifest themselves, and these cases are rather frequent, pregnancy serving to arouse in some way the previously dormant infection. It is the same way with sodium salicylate; only ergot, because of its oxytocic properties, should be rejected, even in cases of hemorrhages during pregnancy, in order not to cause tetanization of the uterine fibers.

Narcotic, analgetic or anesthetic drugs may be administered without fear, when their employment is justified, and may be of great benefit to the parturient woman. The different preparations of belladonna and of stramonium may be employed, also antipyrin, opium, chloral, and chloroform or ether. In cases of threatening abortion laudanum is admirably borne, and as much as a hundred drops in enemata of boiled water may be given during the twenty-four hours, twenty-five drops at a time being the amount used. This is true also of chloral in vomiting, and of chloroform, which is employed during pregnancy to clear up the diagnosis and ascertain the exact configuration of the pelvic cavity, in order to reduce retroversion of the gravid uterus, and to facilitate version by external means. The different mercurial preparations, continues M. Boissard, are administered only in acknowledged cases when the physician finds himself in the presence of a series of abortions or premature births of macerated infants.

Concerning the administration of purgatives, M. Boissard says that under the pretext that in the beginning of pregnancy it is dangerous to use purgatives, some women reach an extraordinary condition of constipation which is much graver than the possibility of the danger they fear. In a general way it is of great advantage to keep the functions of the intestine in a good, regular condition by the use of castor oil, cascara, senna, and enemata of boiled water.

With regard to bathing, this favors the functions of all organs, and particularly of the skin, and pregnant women may and should take baths during pregnancy, one every fifteen or twenty days at the least, observing the following precautions: Not to bathe at a time corresponding to the last appearance of menstruation; not to allow the tempera-

ture of the bath to be above 96.4° F.; not to remain in the bath longer than fifteen minutes, and to guard against taking cold on coming out of it.

Concerning vaginal injections, the author is in favor of their general use and thinks the necessity of their employment should be explained to women. Some precautions are given in regard to their use, and the author adds that if they are observed accidents resulting from the action of the hot water on the uterine fibers will be avoided, also any traumatism to the neck of the uterus.—*New York Medical Journal*, Sept. 25, 1897.

#### IODOFORM SUBSTITUTES.

Iodoform contains about twenty-nine parts of pure iodine in thirty. Its antiseptic and deodorizing effect is therefore due to this element; the carbon and hydrogen with which it is associated render the iodine non-irritant, either when taken by the mouth or applied topically. A great disadvantage attending the use of iodoform is its disagreeable odor. It is impossible to entirely mask this odor, although it may be covered to a great extent by mixing it with various aromatic substances, such as balsam of Peru, Tonquin bean, coumarin, menthol, thymol, oil of sassafras, attar of roses, oil of peppermint, oil of anise, oil of eucalyptus, carbolic acid, etc. A number of iodoform substitutes have been introduced, some containing iodine, and hence supposed to act like iodoform, and others with no iodine in their composition, but which have a similar action to iodoform. Many of these substitutes are proprietary articles of German origin. The results of inquiries made at hospitals, of pharmacists, and wholesale chemists and druggists, show that these iodoform substitutes have in no way diminished the use of iodoform, and that, in fact, they are in very small demand.

Iodol (tetra-iodo-pyrrol) stands at the head of the list of iodoform substitutes as regards the amount of iodine present. It contains about twenty-seven parts in thirty. Iodol is obtained by precipitating pyrrol with iodoiodate of potassium. It is a micro-crystalline, brownish-white powder, having a faint thyme-like smell, and is soluble in six parts of absolute alcohol, but nearly insoluble in water. It is said to produce no toxic action like iodoform when wounds are dressed with it, and its application is painless. Iodol has been used with good results in granular and chronic conjunctivitis, hard and soft chan-

cles, and various ulcers much improve under its use. It possesses some anesthetic action, and acts as an astringent when discharge is copious.

Losophan (meta-tri-iodo-cresol) contains twenty-four parts of pure iodine in thirty. It is a grayish crystalline powder, soluble in alcohol, chloroform, oils, and fats. It has been found useful in parasite skin affections, but not of general value, and it is apt to cause irritation.

Iodo-salicylic acid and di-iodo-salicylic acid are iodine compounds of salicylic acid in which one or two atoms of hydrogen respectively are replaced by iodine. Di-iodo-salicylic acid contains twenty parts of iodine in thirty, iodo-salicylic acid fifteen in thirty. These compounds are powerful antiseptics. They possess the combined action of iodine and salicylic acid, and have been successful in the treatment of acute polyarticular rheumatism where salicylates have failed. These acids are in the form of white micro-crystalline powders, slightly soluble in water, soluble in alcohol, ether, fixed oils, and like salicylic acid, also in collodion.

Soziodol (di-iodo-para-phenolsulphonic acid) is composed of fifty-four per cent. iodine, seven per cent. sulphur, and twenty per cent. phenol. It has been combined with sodium, potassium, ammonium, lead, mercury, and zinc, which have been suggested as odorless substitutes for iodoform. The sodium salt which has been used is in colorless shining acicular crystals, soluble in water. The salt is well tolerated as an external application. It has been given internally in doses of twenty grains three times a day. Soziodol has been found useful in the treatment of whooping-cough—three grains blown into each nostril once daily. A solution of soziodol-mercury with iodide of sodium has been recommended for intramuscular injection in syphilis.

Aristol (di-thymol-iodide) is a reddish-brown powder containing 45.8 per cent. of iodine. It is insoluble in water, glycerin, or alcohol, but soluble in ether or oils. It has been used successfully in various skin affections, psoriasis, eczema, rhinitis, ozena, and lupus, but has proved unsatisfactory in lichen rubra, soft chancre, and gonorrhea. Aristol has a certain effect on venereal ulcers, but acts very slowly; the only advantage it possesses over iodoform is absence of smell—its activity is inferior. It has been found of service in the first and second stages of pulmonary tuberculosis when no cavities exist. It also

lessens cough and night sweats. Burns and scalds have been successfully treated with aristol, and the application in a powder to the cornea in keratitis and in an ointment in corneal ulcers has given good results. It is of great value in nasal affections; it lessens the discharge, relieves pain, and stops bleeding when used as an insufflation in cancer of cervix uteri.

Euophen (iso-butyl-ortho-cresyl-iodide) occurs as a pale orange, non-crystalline powder, containing twenty-eight per cent. of iodine. It possesses powerful antiseptic properties, and being resinous to the touch it adheres well to mucous membrane and wound surface, and does not easily cake. A given weight as compared with iodoform will cover a surface five times the area of the latter. It is non-poisonous, and acts only when brought into contact with secreting surfaces, which decompose it and liberate iodine. Its lightness and freedom from odor make it especially useful in dentistry. The general opinion of euophen is that it may be used with advantage in all cases where iodoform has been used. Improvement has followed its use by inunction and subcutaneous injection in tubercular leprosy, and it has been found serviceable in eye diseases, otitis, and ozena. Euophen has failed in eczema, psoriasis, and gonorrhea, but has given satisfactory results in simple and venereal ulcers, and in oily solution injected daily for syphilis.

Loretin (meta-iodo-ortho-oxy-chinolin-anasulphonic acid) is a bright yellow crystalline powder, odorless, and similar in appearance to iodoform. It is very slightly soluble in water or alcohol, and insoluble in ether, but forms soluble salts with alkalis, except with lime. It is non-poisonous and unirritating, and has been used with marked curative effect on burns, ulcers, and other wounds.

Airol, a gallate of bismuth and iodine, is a light grayish-green powder, stable in dry air, but when left in contact with moisture iodine is gradually liberated. It is insoluble in water, alcohol, and ether. Airol is astringent and desiccative, as well as being antiseptic.

Di-iodoform (ethylene periodide) occurs in yellow crystals, almost inodorous, insoluble in water, soluble in chloroform, and slightly in alcohol and ether. It is partly decomposed by light. It has been recommended as an antiseptic in place of iodoform.

Antiseptol (iodosulphate of cinchonine) is an odorous brown powder, which has been recommended as a substitute for iodoform. It contains half its weight of iodine, and is

soluble in alcohol or chloroform, but is insoluble in water.

The chief non-iodine compounds which have been introduced to compete with iodoform as an antiseptic are dermatol, thioform, and thioresorcin.

Dermatol as a basic gallate of bismuth is recommended as a powerful non-irritant antiseptic and desiccant. Applied to wounds it induces rapid cicatrization, does not irritate nor give rise to toxic effects. It is not well suited to septic wounds, and insufficiently stimulating in chronic indolent ulcers. It is a quicker microbicide than iodoform. Its use in the treatment of venereal ulcers has been successful, and also in pustular and diphtherial conjunctivitis, corneal ulcers and pannus, but of little use in blepharitis. Dermatol is a yellow powder, odorless, and insoluble in water.

Thioform, a basic bismuth salt of di-thio-salicylic acid, is a yellowish-brown powder, odorless, and insoluble in water. Its claim to supplant iodoform is based upon its freedom both from odor and from toxic properties, its greater antiseptic strength, and its desiccative action. It freely absorbs secretions from wounds without forming a crust. As a desiccant antiseptic, especially for eye cases, it has been recommended.

Thioresorcin is a combination of sulphur with resorcin. It is a yellowish-white, inodorous and non-toxic powder, insoluble in water, slightly so in alcohol and ether. As a dusting powder it has been used instead of iodoform, and a ten- to twenty-per-cent. ointment for eczema, psoriasis, and other skin diseases.—*British Medical Journal*, Sept. 18, 1897.

#### A FURTHER REPORT ON THE TREATMENT OF TUBERCULOSIS BY IODOFORM INUNCTIONS.

Dr. LAWRENCE FLICK, who is well known as an enthusiastic student of tuberculosis from a clinical standpoint, makes a report upon his favorite method of treating pulmonary tuberculosis in the *Journal of the American Medical Association* of July 31, 1897.

The conclusions that the author believes himself justified in drawing from his eight years' experience in the treatment of tuberculosis with iodoform and euophen are:

1. That incipient cases can almost always be cured by euophen or iodoform inunctions.

2. That cases advanced to the breaking-down stage may be improved very much by

this method of treatment and can sometimes be cured.

3. That the treatment ought to be continued even after acute symptoms have disappeared, and it should be maintained until perfect health is reestablished.

As to the respective merits of euophen and iodoform, from a therapeutic point of view, both have apparently done equally well in the author's hands as far as the results are concerned. From an esthetic point of view, the euophen is much to be preferred because it is much less offensive in odor, and can be almost perfectly disguised. He has for almost a year discarded the use of iodoform. The formula which he now employs is as follows:

Euophen, 1 drachm;  
Oil of rose, 1 drop;  
Oil of anise, 1 drachm;  
Olive oil, 2½ ounces.

This makes an excellent preparation, giving a perfect solution, and being in no wise offensive to the sense of smell. He instructs his patients to rub about a tablespoonful thoroughly into the inside of the thighs and into the armpits before retiring at night, and if they have any fear of odor, to sponge themselves with bay rum or bath whiskey when rising in the morning. By following these instructions the most fastidious can satisfy themselves that they will not attract attention in public. The treatment is somewhat troublesome, but patients when they once discover that they are deriving benefit from it not only do not object to its use, but are anxious to employ it. He has had very little trouble on the score of getting patients to persevere with the treatment during the acute or subacute stages of their illness, but only when they have apparently recovered their health. Most people settle for themselves the question whether or not they are well, and the author finds that when consumptives begin to enjoy a fair state of health they do not care to any longer submit to a troublesome treatment.

It is but proper for Flick to say, further, that the majority of cases that he has treated in this way and upon which he bases this report were among the poor and never had the advantage of climate, or even temporary removal from the city. Indeed, many of them did not even have the home comforts and the advantages in food which are so important in the treatment of tuberculosis. The results ought therefore to be judged upon a basis of unfavorable environments,

for which reasons, in comparison with other results, some allowance ought to be made. He has no doubt that in sanatoria favorably located much better results could be obtained by this treatment.

The author has long since been convinced that it is the iodine which gives the good results, and that the advantages of using euophen or iodoform through the skin lies in the fact that an even and continuous influence can be maintained on the blood by the gradual absorption of the drugs and giving off of the iodine in the blood or tissues. He confesses that he has arrived at these views largely by exclusion, because they are the only ones tenable with our present knowledge of the etiology and pathology of tuberculosis. When tuberculosis has once advanced beyond the first stage it is only curable by the establishment of an immunity against any new colonies of the tubercle bacillus. This is because when the circulation is once cut off from the existing deposit, cure can only take place by either getting rid of that deposit, or by walling it in. Usually Nature makes an effort to get rid of the deposit through the process of degeneration and ulceration through the healthy tissues. But inasmuch as the germs have to pass through the healthy tissues when the broken-down tissues are being thrown off, reinfection is almost certain to take place unless the individual possesses an immunity which makes it impossible for the germs to again find proper soil for development. This immunity must, moreover, be constant and sufficiently permanent to maintain an uncongenial soil until all the germs have been ejected from the organism. The iodine which is given off from the euophen and iodoform into the circulation after its absorption by the skin maintains, he believes, to a certain degree, an immunity which makes new colonization difficult, and in this way contributes toward a cure.

Where tuberculosis is still incipient, and where the circulation has not yet been cut off from the nodules, he believes that the iodine when brought into the system through the euophen or iodoform inunctions will almost invariably cure. Of the cases of this description that he has treated, most have recovered, although a number had relapses and subsequently died of acute tuberculosis. Some of these cases, however, were constantly exposed to reinfection from other members of the family, and may have contracted new attacks.

It is but fair to say that an incipient case of tuberculosis is an unconfirmed case as far as diagnosis is concerned. The diagnosis in incipient cases must necessarily depend upon clinical symptoms, as there is not yet any broken-down tissue, and there is no possible way in which the tubercle bacillus can be demonstrated. The clinical symptoms of tuberculosis are, however, sufficiently striking and well enough defined to allow of a rational diagnosis. Where we have a rapid pulse, a daily rise of temperature, with impaired resonance, or partial consolidation of part of a lung with prolongation of the respiratory murmur, there can be little doubt about the nature of the disease from which the person is suffering. We know, moreover, from past experience that persons in this condition, if allowed to go on without treatment, invariably develop into full-fledged consumptives. While there is, therefore, some doubt about the diagnosis of the cases which he has quoted as incipient, they must be accepted as representative cases of their kind and must be allowed to pass as a basis for the conclusions which he has given.

Flick feels that it is proper for him to say, in conclusion, that much of the benefit which he has had in the treatment of the cases quoted in this paper was no doubt due to tonics and creosote. As indicated throughout the paper, he has used creosote in large doses in all cases advanced to the breaking-down stage. In such cases he thinks better results are obtained by using both creosote and euophen than by using either drug alone.

#### *A DISCUSSION ON THE TREATMENT OF INSOMNIA:*

An important discussion on the treatment of insomnia was carried out during the recent meeting of the British Medical Association in Montreal. Prominent physicians expressed themselves concerning the value of various therapeutic measures. Among others CLARKE stated that in the sleeplessness associated with acute mania, drug treatment is at times extremely valuable in the early stages, but his experience has been that, if marked beneficial results do not occur almost at once, they will not appear at all, and harm will result from the drug treatment. It is doubtless true that some of the hypnotics are better than others, but he is strongly impressed with the advisability of substituting other treatment when possible, such as affusions easy of application, massage, etc. With-

out drugs and by simple physical means it is easy in many cases to restore normal arterial tension and cause sleep. In the insomnia of acute mania the warm bath is oftentimes of the greatest value. Our custom is to use water at a temperature not exceeding 104° F., and this is continued for twenty minutes or more while cold applications are made to the head. The bath at 104° F. is certainly much safer than one at 110° F., as advised by some authors, and there is less danger of inducing collapse, a danger never absent in a case of mania. Of course the warm bath is contraindicated where heart failure is threatened or where organic heart trouble is present. Those who have seen excited patients actually fall asleep in the warm bath can easily believe in its advantages. Its good effects can be understood when we study the physiology of sleep, and the whole procedure is devoid of the objection which so frequently applies to drugs, namely, that the bodily functions, particularly the assimilative powers, are impaired. That this frequently occurs with the continued administration of hypnotics has been proved time and again.

The danger of collapse during and after the administration of hot baths has been referred to; but certainly it is no greater than is to be feared from even such apparently innocent drugs as trional and sulphonal. Van Schalk states that trional has no inhibitory action upon the secretions, seems to possess a stimulating effect, is well borne by the stomach, is easily absorbed by the rectum, and does not produce unpleasant after-effects. It certainly possesses many virtues, but at times is borne very badly; and a case of poisoning recently reported would go to show that even trional is not always safe. In this case twenty grains had been given daily, and as a result there were hebetude, ataxia, tremor, transposition of words, psychic depression, and weakness and incontinence of urine. In the author's own experience he has seen unpleasant results follow the administration of even small doses of trional. Perhaps he has laid too much stress on sleeplessness in acute mania, but to his mind it is a very important subject and so frequently defies routine treatment. Sometimes, too, it is surprising how quickly the sleeplessness yields. Within the last few weeks he has seen persistent insomnia in a maniacal case in which there was extreme restlessness give way before nothing more complicated than rest in a hammock slung under shady trees all day long.



Sometimes the time-honored cup of hot milk at bedtime induces the sleep habit, and where a stimulant is indicated a hot toddy is oftentimes worth a dozen doses of chloral or its equivalent.

Insomnia occurring in neurasthenia is possibly one of the most difficult and unsatisfactory forms to deal with, but a study of the arterial pressure at the radial pulse will almost invariably show that in this condition the pressure is lowered. In many cases, as suggested by De Fleury, where the patient with asystole cannot sleep, it is because the arterial tension is low. If his feeble heart is strengthened by digitalis, sleep is possible. In many cases one can substitute the dynamic agents, massage, frictions, douches, and transfusions, and at the same time caffeine and digitalis can be employed as heart tonics. It is with the neurasthenic cases that the amateur doctors who exist in every community have their most satisfactory experiences in the way of suggestive lines of treatment as unique as they are absurd. In the *British Medical Journal* of September 29, 1894, we find a clipping from the *Glasgow Herald* in which one of these cures for sleeplessness is recommended. It is as follows: "Soap your head with ordinary yellow soap; rub it into the roots of the brain until it is lather all over; tie it up in a napkin, go to bed, and wash it out in the morning. Do this for a fortnight. Take no tea after 6 P.M." The *Journal* advises following the directions about the tea and leaving the instructions regarding the soap as a last resource. Insomnia is one of the diseases of civilized life and exceedingly common among the highly intellectual and brain workers. It is a condition which may be cultivated and sometimes may certainly be called a bad habit, for after all, as pointed out by A. W. McFarlane, of Glasgow, habit plays a very important part in the development of some forms of insomnia. Sleeplessness, he suggests, may arise in persons in health from bad habit alone. Nurses often suffer in this way. They sometimes curtail their sleep unduly, to find, when their services are no longer needed, they cannot sleep. Their brain cells have acquired the bad habit of maintaining activity when they ought to be reposing.

It is a simple matter to give advice to those who have acquired the sleepless habit; it is difficult for them to follow it, for sometimes the very attention that is directed to the bad habit makes it worse. We are told that a good sleep habit should be sedulously

cultivated by falling asleep without delay immediately after retiring. We cannot sleep if we continue to think, we are told. The tossing, restless one says: "Tell me how to avoid thinking when in bed, and I will follow your advice." Some men are so harassed during the day that they are driven to do their thinking in bed, but it undoubtedly means burning the candle at both ends. For these overwrought and oftentimes nervous people the author has found a glass of hot milk on retiring useful in some cases; in others half a pint of bitter ale answers every purpose. Oftentimes, too, it is necessary to arrange the patient's diet on a physiological basis. He agrees with Dr. McFarlane that regularity in the habit of retiring is of more importance than going early to bed, and certainly when one who has suffered from insomnia has succeeded in overcoming the bad sleep habit he should be slow to endanger his health and happiness by doing anything likely to induce insomnia again.

Change of air is extremely valuable, and for most people of nervous type an outing under canvas in the northern woods of Canada is a sleep producer of the most remarkable kind. The author has seen men, haunted for years by the demon insomnia, go to these woods, and while there develop a sound sleep habit which added years to their life. After the first night at camp, sleeplessness is almost unknown. Personally he prefers advising almost anything rather than drug treatment in the common forms of insomnia, and feels satisfied that we are playing with fire when we resort to the use of hypnotics, except as a temporary expedient. Of course we should not forget in these different forms of insomnia that sleeplessness is frequently something more than a bad habit; it is a symptom of other trouble, and it is necessary to discover and treat the underlying cause.

If neurasthenia is to be regarded as one of the autotoxic diseases—and there is abundant evidence to support this view—in all probability the effect will disappear with the removal of the cause. The same remarks apply to all of the cases of insomnia resulting from toxemia; and when we get clearer light on autotoxis than we have at present, no doubt it will be a simple matter to improve our method of treatment. In neurasthenia autotoxis will admirably explain the etiology of the disease, as has been pointed out by Van Giessen and others. With insomnia accompanying surgical operations the

author has had little experience, but the subject has been deemed worthy of a good deal of attention by those who have had ample opportunity to observe it.

G. G. Van Schaick concludes that insomnia, from whatever cause, is an important complication of surgical disorders. Its relief is necessary for the comfort of the patients, improves the prognosis, and naturally assists recovery after operations. Where pain is the chief factor morphine is the only drug that will relieve with certainty, although there is a strong feeling in favor of the use of trional.

In a general way, then, Clarke may say that many writers are impressed with the belief that in a majority of cases of insomnia drug treatment is to be avoided, if other more simple methods of inducing normal sleep are found successful. Certainly the simple methods should be tried before drug treatment, and in any case the condition of the arterial pressure should be carefully studied and noted, before any line of treatment is decided on.—*British Medical Journal*.

#### ON THE USE OF SENECIO IN DISORDERS OF MENSTRUATION.

FOTHERGILL (*Medical Chronicle*, September, 1897) in a prize research on this drug, of a clinical character, tells us that the cases in which he has employed these preparations fall into four groups, and, so far as they go, tend to provide the answers to four questions, thus:

1. In pregnant women—Does senecio cause abortion?
2. In amenorrhea, without pregnancy—Does senecio cause menstruation?
3. In persons menstruating regularly—Does senecio cause the flow to appear earlier than usual?
4. In dysmenorrhea—Does senecio relieve pain?

The results lead Fothergill to agree with Murrell that "senecio is not an ecboic." He also agrees with Murrell that the drug will not provoke menstruation in cases of marked anemia or advanced phthisis, but will do so in cases of functional amenorrhea. Murrell, however, thinks that senecio increases the quantity of the discharge, while the author's own cases point to the opposite conclusion. The views of Bardet and Bolognesi are identical with Fothergill's on these points, though he differs from their views as to the mode of action of the drug. As to dysmenorrhea, Murrell, Dalché and Heim found the

drug useful in certain cases, while the author is inclined to agree with Bardet and Bolognesi that it will not be found of much use for the relief of pain. Finally, he thinks that the pharmacology and chemistry of the plants of this genus should be worked out by competent hands, and that those interested in disorders of menstruation will find the drug worthy of a clinical trial.

[The dose of the fluid extract of *senecio* is twenty to thirty minims.—ED.]

#### PHARMACOLOGY OF STROPHANTHUS.

The well known pharmacologist, Dr. E. M. Houghton, contributed an interesting paper on this topic at the recent meeting of the American Medical Association. In concluding it he says: "Briefly summarizing the pharmacology of *strophanthus* we may say that its chief action is upon the nervous mechanism controlling the action of the heart, and upon the heart muscle itself, lessening pulse-rate, increasing the blood-pressure, and augmenting the work of the heart, without causing constriction of the arterioles or any special action on the vasomotor mechanism, the diuresis and other important results being due mainly to improved circulation. Its special advantages over *digitalis* may be briefly stated as follows: It does not produce gastric disturbances, and does not show cumulative action. The constriction of the vessels by *digitalis* may be a source of great danger owing to the extra strain thrown on the ventricle, especially in fatty heart. *Strophanthus* has no such tendency. It acts quicker and with greater certainty. Owing to its ready solubility it is better for hypodermic administration, and the strength of its preparations can be more easily standardized."—*Journal of the American Medical Association*, Sept. 11, 1897.

#### TREATMENT OF GOUT.

Dr. H. C. Wood has recently, in his characteristic manner, discussed this subject in the *Journal of the American Medical Association* of July 31, 1897. He says that with regard to drugs there are a great many people who tell us that salicylates do no good. Men do not get good out of salicylates because they do not use them properly. The author does not believe that salicylates cure gout or rheumatism, any more than that bromides cure epilepsy. They simply aid in keeping down the diathesis. If there be any cure, it is exercise. If we use our salicylates on a

case properly, and get no response, we have something more than ordinary gout or rheumatism to deal with. There are certain cases which approach typical gout such as we rarely see in America, in which colchicum does good, much more good than salicylates. He has seen two cases of typical English gout corresponding to Sydenham's description, and only two. We do not have it in this country. These cases colchicum suits better than salicylates do. Sometimes when the case is on the border line, we will get the best results by a combination of colchicum with salicylates. If we have a strong, robust man, he will stand it. Give him knock-down doses in addition to purging him and we will bring him through. But that treatment may be worse than the disease, and has to be used with caution.

In using salicylates the profession almost universally choose the worst salt they can find, and that is sodium salicylate. It is, perhaps, not so bad as salicylic acid, but it is much more apt to turn the stomach, and is less effective and more depressing than the other salts of salicylic acid. The two salts which are truly useful are the ammonium salt and the strontium salt. The ammonium salt acts immediately and severely; the strontium salt acts slowly. If we have an acute case, we should use salicylate of strontium or use the two combined. The strontium salt has this advantage, that it does not derange digestion anything like the other preparations, and many a time the author has seen the best effects on the intestinal condition from the use of the strontium salt.

In a large majority of cases we will find that salicylates produce depression, perhaps a little nausea, and general wretchedness, and the patient refuses them. Nine times out of ten we can overcome those effects by combining our salicylate with digitalis and strychnine in the same prescription.

As to baths, we cannot cure a diathesis by such means. But baths are useful—hot baths, steam baths, Turkish baths. Any man who values his own life, who has had a gouty grandfather, ought to take a Turkish bath once a week. We cannot wash out ancestral traces in any other way. The kidney disease and the atheroma would be far less rife if we used the hot bath more than we do. The baths eliminate, give a temporary result, and are very useful when employed with the understanding that they do not cure the disease but relieve the symptoms.

Wood then says a word about the Tallerman-Sheffield apparatus, or the use of dry heat, with which he has had a good deal of experience this year. For about three months he had a large clientele using it all day long. In the first place it is absurd to suppose that this is going to cure the gouty diathesis any more than any other application will; in the second place it is his experience that it has very little value in rheumatoid arthritis; and in the third place it is of very little value in chronic inflammations, even of purely gouty character, in joints. But the office formerly crowded with people seeking relief is empty to-day, and that is the best criterion of the result. If the results claimed for the treatment were obtainable the author says he could soon fill the hall in which he read the present paper with patients, for they all want relief, but every missionary he has sent out converted the people to the wrong faith. On the other hand, when we have deposits in the tendons and outside the joints; when we have traumatic synovitis, whether in baseball men or other persons, the results of this apparatus seem almost marvelous. He has seen a pitcher's hand drawn up and disabled for three or four years, the condition pronounced by a distinguished physician as gout, treated by the dry heat method, and after three or four treatments the hand became pliable and the use of it came back. So, in acute strains and tendinous inflammations, this dry heat is of great value. In subacute rheumatism it is of value through its sweating and local influence. It has to be used at high temperatures. Wood carried it up to 330° F. We can scorch the lint wrapped around the limb without scorching the limb. It has no value at all in old cases of rheumatoid arthritis, and is of very little use in rheumatism of the joints, according to the writer's experience.

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*PRELIMINARY REPORT ON THE ACTION  
OF BEHRING'S SERUM IN DISEASES  
NOT DUE TO THE KLEBS-  
LOEFFLER BACILLUS.*

In the *British Medical Journal* of December 11, 1897, Dr. McCALLUM, of London, Canada, records a number of interesting facts in regard to the more general use of antiphtheritic serum. His paper is so suggestive that we quote it entire:

One of the intuitions that have led medical men to oppose the claims made for Behring's serum in diphtheria has been a necessary

belief in specialization of defense in mycotic disease. The physical law of conservation of energy, which is doubtless as truly a biological law, would suggest that tissue defense was general, not special; and if there be defensive proteids formed in any considerable quantities, these are but the expressed products of the vital energies of the general tissues. While the writer readily admits, as suggested by Dr. Lauder Brunton, that the proteids by the readjustment of their molecules can be specialized, yet such specialization is doubtless not permanent, and once these proteids are in the circulatory currents there is no reason to believe their usefulness is gone in defense against other diseases. On the other hand, the doctrine of tissue tolerance, while tenable for cases rendered immune by long-continued and increasing dosages, cannot be reasonably entertained for sudden change of front seen after a few doses of serum—the development of tolerance must be the work of months, not hours.

While the writer is not led afield by a discussion on immunity, he states in passing that he believes Nature has no single function or metabolic phenomena she cannot fly to for defense in times of peril.

The first and foremost of these defensive agencies, and at the same time the most ancient, is vital movement. The differences in immunities and cures are doubtless differences in emphasis on the several factors in their accomplishment. It has occurred to the writer that no fair trial has ever been given to Behring's serum in diseases (not diphtheria) in contradistinction to the tests on toxins. From the urticarial rashes produced by it he was led to believe that this serum excited a rapid interchange in the lymph circulation—that is, that it acted as a lymphagogue.

Three months ago he began trial of this remedy in phthisis, and the results encouraged him to extend his investigations to other diseases. These investigations cover nearly forty cases and many diseases, some of which are but recently placed under treatment. The writer, therefore, reports a short history of its results in but a few cases, prefacing these with a brief indication of its physiological action.

In a non-diphtheritic patient it gives rise to reactions largely dependent on dosage, diathesis, ailment, and local lesion. Under dosage it is convenient to divide the treatment into four periods, all or some of which may be absent:

(a) A period of initial fever, four to twenty-four hours after the first and second injection. This stage is very likely to be accompanied by reaction in the local lesions. In the normal individual this stage is absent or slight.

(b) A period of pseudo-vaccination, twenty-four to seventy-two hours after the third dose (second, fourth). This condition bears a strong clinical resemblance to symptoms seen in ordinary vaccination. There are large patches of erythema at the points of injection, most marked in the last; a chill (often slight) in some few cases, marked headache, urticarial rash, and sometimes considerable prostration. This stage lasts about twenty-four hours, and the patient has comparative immunity to further injections. It is after this stage is reached that one can expect beneficial therapeutic results in chronic disease.

(c) A period of sequelæ, eight to fourteen days after the second or third injection, in which secondary urticarial rash, arthritic pains, rarely an attack of subacute rheumatism or pains simulating neuritis, and sometimes a sore throat may occur. This stage has been recognized in the treatment of diphtheria and wrongfully attributed to septic infection. It seems to the writer to be due to an accentuated rheumatic diathesis.

(d) Period of comparative immunity from stages *a* and *b*. This period usually commences after pseudo-vaccination. He has seen one case of rheumatic diathesis in which he thought a mild attack of subacute rheumatism was provoked by the serum. Gouty and rheumatic patients are apparently more prone to urticarial rashes. The kind of serum is not solely responsible for these rashes. Many of his patients never had a rash—even those who received the greatest number of injections. The tuberculous patient has usually inflammatory action in the lesions.

The action in disease will depend on the stage, for when the system is aroused by this serum it seemingly exercises an intelligent choice of action. The following action of the serum was noticed from clinical observation: It increases saliva secretion; in a few days the dry, brown tongues of typhoid are replaced by clean, moist ones. With this change taste and appetite are restored toward normal. Constipation becomes lessened and in some cases disappears, and the stools become biliary and yellow under it. More milk is taken without curd appearing in the stools. The amount of urine is increased, and in

cases of scanty urine this has been a surprising feature. The heart action is made slower and the arterial tension increased; this may explain in part the increased urine. We have increased leucocytosis and a very great increase of the clotting power. It apparently acts powerfully on the pelvic lymph system. It will melt pelvic inflammation in two weeks as no other remedy can do. It has some action on the diseased endometrium. It apparently removed a severe and persistent attack of pruritus in one patient. It gives apparently excellent results in unhealthy granulation and sluggish ulcers. It has a decidedly favorable action on insomnia; restless nights are turned into refreshing sleep. This is due either to excretory adequacy or an excited internal secretion which induces sleep. It clears the atmosphere in depression from autotoxemia.

Before he narrates histories the writer mentions the diseased conditions in which the remedy is tried or being tried: Eight cases of pulmonary tuberculous lesion (renal, testicular, arthritis, glandular, meningeal, and laryngeal), sciatica, supposed mediastinal growth, a retroperitoneal mass of doubtful origin in a patient over fifty, multiple sarcoma or Hodgkin's disease, secondary pulmonary cancer, typhoid fever, enlarged spleen, pelvic peritonitis, some of the cases with salpingitis, endometritis, appendicitis, cystitis, multiple sclerosis, leucoderma, gonorrheal rheumatism, nephritis, erysipelas, and sepsis.

Dr. McPhedran (Toronto) placed a case of lupus under the serum. Some of these cases were seen in the practises of Drs. F. R. Eccles, J. B. Campbell, C. F. Nue, Teasdale, W. S. McDonald, and R. M. Bucke (London, Ontario).

CASE I.—W. J. R., aged twenty-five, had hemoptysis to syncope, October, 1894, and a recurrence every month or two during the following year. From November, 1895, they became more frequent. At this time speaking became more painful and his voice hoarse. In November, 1896, when he came under the writer's care, there were present the physical signs of extensive tuberculous involvement of left lung and pleura; in fact, the whole left chest was flattened and immovable. His weight was 142 pounds, and his chest expansion barely reached two inches. Tubercle bacilli found plentiful in sputum. He was able to take large daily doses of creosote (60 to 200 grains in enteric pill form) for months. He would improve for weeks, but a fresh hemorrhage would more than undo all the

gain. By March 1 his voice was reduced to a whisper. During April and May fever, restless nights and night sweats emaciated him to 122 pounds, and left him during the last of May bedridden. In spite of rest, opium, lead and ergot the hemorrhages became of daily occurrence in the last two weeks of May, blanching the patient.

This, then, was a picture of the author's first serum patient, and on June 1 he received his first dose of 250 units. Three days after a second dose of 250 units was given, and from this day 500 units were given thrice weekly till July 10. The first and second treatments decidedly increased the cough and expectoration. The hemorrhages ceased on June 4, and from that day to the present no tinge of blood has been seen in the sputum. By July 1 his voice was better than it had been for a year, and his strength very much recovered. During the first ten days of treatment he lost four pounds in weight; from this time to August his weight remained stationary. Since August 1 he gained a few pounds. Directly after the second dose the night sweats disappeared, and he began having refreshing sleep. On July 26 the writer ventured a second 1000 units, with a similar pleuritic attack resulting. He then gave him daily doses of 500 units till August 7, from which time till August 17 he gave him 1000 units every second day. From that date forward his dose was reduced to 1000 units every four or five days. Altogether he took over 25,000 units of diphtheria antitoxin. The physical signs apparently favorable from time to time reminded one of those of resolving pneumonia; and the ease with which sputum was expectorated was suggestive of the same thing. The clearing began at the base and traveled upwards. The crackling pleuritic sounds heard in the left chest on forced respiration before treatment have almost disappeared. His appetite and spirits are better than for eighteen months. Chest expansion three inches. The once immovable left chest has considerable expansive power now.

In the light of results in other cases, the writer thinks less frequent dosage would have been better for him, and while the serum by increasing the coagulability of the blood arrested the hemorrhage, yet in another patient with considerable tension 1000 units seemingly produced a hemorrhage by congestion of the local pulmonary lesion.

CASE II.—W. S., aged thirty-six, had tuberculous arthritis in left knee in 1875 and

1876. Five years ago the glands of his right neck became troublesome. These were removed in 1893. Three times in 1894 tuberculous glands were removed—twice by Dr. J. H. Cameron (Toronto) and once by Mr. Clutton (St. Thomas's Hospital). In February, 1897, Dr. Cameron removed some more glands, but on account of the brawny indurated skin being likewise tuberculous and other deeper glands beyond reach being infected, no radical removal was attempted. From the first two injections no result followed. The third of 1000 units was given August 7. On August 10, three days after the author saw the patient, his temperature reached 102° F. He had been afebrile before injections. The left knee had swollen and contained effusion, and some of the old scars there were painful and inflamed. The unremoved glands of the neck were swollen and painful. The surgical incisions were red, and one of them in the next few days threatened to suppurate. The subsequent dosage did not have such a violent action.

Examined August 20: There was a softening and thinning of the indurated skin over neck. A favorable change took place in the tuberculous glands. There was diminished periadenitis, and they were less hard.

CASE III.—E. H., aged seventeen (Dr. A. McPhedran's patient). Lupus began at point of vaccination eleven years ago. She received four doses. Dr. McPhedran wishes the writer to say that when seen Friday, August 27, about ten days after the first dose, there were apparently beneficial results. He saw the patient himself on this date, and from her statement McCallum learned that this was the first time in eleven years the lupus was free from discharge.

A patient over fifty years of age had a retroperitoneal mass of two years' growth. It was greatly improved, less tender, more movable, and diminished in size. The accompanying insomnia was almost cured; he had five to seven hours' sleep in the night. In pulmonary cancer it apparently diminished the periadenitis and adenitis (superclavicular). It had a similar effect in Hodgkin's disease. The writer has already mentioned its action in pelvic disease. He does not mean to say it will remove a collection of pus, and yet in a case of gonorrheal salpingitis examined under chloroform by Drs. Meek and Eccles, something very much akin to that apparently took place.

To summarize, he suggests that as the beneficial effect of Behring's serum was not well

marked till several days elapsed and several injections had been given, it doubtless acts as a powerful lymphagogue or tissue arouser, such aroused condition being defensive to a degree against all invasion. The author cannot say whether all these effects, or some of them, cannot be obtained by ordinary horse serum. Dr. C. F. Nue has consented to undertake the task of seeing if several doses four or five days apart will render rabbits or guinea-pigs more resistant to various toxins than untreated animals.

Professor Richet, of Paris, in 1889 used horse serum to treat tuberculous patients. Dr. Coley, of New York, has shown that human subjects suffering from cancer are greatly benefited by injections of the toxins of streptococcus—apparently developing a kind of immunity to these toxins which is defensive against malignancy.

Treille (Foster, *Pract. Therapeutics*, vol. ii, p. 174) declares Behring's serum curative in malaria. Fournier (*ibid.*, vol. ii, p. 178) urges its use in grave scarlet fever angina. Dr. Williams, of Cardiff (*ibid.*, vol. ii, p. 7), mentions the beneficial effects of antistreptococcal serum in the delirium and insomnia of sepsis. Roux (*Annales de l'Inst. Past.*, 1894, p. 727) has shown that Behring's serum mixed with abrin retards the fatal effects of this poison.

Antitetanic serum has been shown by Calmette and Professor Fraser to be antidotal to snake venom. It has been long recognized that recovery from one infection often lessens the danger of another. Vedova (*Arch. Ital. di Path.*, 1897) claims that Behring's serum is specific for chronic fetid atrophic rhinitis due to the false diphtheria bacillus.

Howard Lilienthal (*Medical News*, July 17, 1897) reports one case of "hospital gangrene" in which staphylococci and streptococci were found, and one case of sepsis (with distended abdomen, rapid pulse, and a temperature of 106° F. six days after confinement) in which Behring's serum apparently led to recovery.

In conclusion, the writer points out that his results in any of these cases do not permit him to give his final word; indeed, it may be other serums would be found more potent, yet the result urges him to hope that some animals rendered immune to some other toxin or combination of toxins will give a serum with which curative results in tuberculosis and cancer may be more confidently expected.

ON THE NON-SURGICAL TREATMENT OF  
BOILS, CARBUNCLES, AND FELONS.

In the *British Medical Journal* of October 2, 1897, L. DUNCAN BULKLEY, of New York, publishes a paper on this subject, and first emphasizes the important fact that patients with boils, carbuncles and felons are never in perfect health, although it is sometimes difficult to discover exactly on what particular departure from health the condition depends; patient investigation, however, will generally afford the line upon which successful treatment will rest. Iron is most commonly needed, but quite as often there will be digestive and assimilative difficulties also to be overcome. Sometimes the cause lies only in overwork or worry; often in dissipation, though of a relatively harmless kind, involving late hours and irregular eating. The author cannot help dwelling as strongly as possible on this constitutional aspect of the question, for in this he finds himself at variance with much that is taught even in the best modern text-books. In them this aspect appears to be regarded apparently as of relatively minor importance compared to the local treatment, whereas he regards it as of the first importance as compared to the relatively simple local treatment about to be described, which he has found thoroughly satisfactory.

The combination of iron which he has most commonly used in these affections is one which is known to us as Startin's mixture, somewhat according to the following formula:

- ℞ Ferri sulphatis, 1 drachm;
- Magnesiae sulphatis, 6 drachms;
- Acidi sulphurici diluti, 4 drachms;
- Syrupi zingiberis, 4 drachms;
- Aqua, ad 3 ounces.

M. Sig.: One teaspoonful in water through a tube after meals.

Unless there is some counter-indication he generally begins treatment also with a good mercurial purge:

- ℞ Massæ hydrargyri,
- Extracti colocynth. co., ʒʒ 10 grains;
- Pulv. ipecac., 2 grains.

M. Div. in pil. No. iv. Take two at night and two on the second night after.

These four pills are generally repeated at the end of a week, and perhaps in other successive weeks.

Sulphide of calcium, if a perfectly fresh and good article and properly used, has in the author's experience a very decided and controlling effect over the process of suppuration. He always gives it in gelatin-coated pills, which he tests himself, for occasionally the drug will be found quite ineffect-

ive from having changed to the sulphate of lime or gypsum. To be efficient it should be given freely, one-fourth grain every two hours—say eight or ten doses in the day; this in connection with the iron tonic.

With these measures and a most careful attention to the diet and mode of life, the tendency to the suppurative process may generally be quickly overcome, as he has observed almost daily for many years.

The local treatment of the diseases under consideration which he has found very satisfactory differs materially from that commonly laid down, but can be briefly described. We will consider each affection separately:

1. *Furunculi*.—The objects aimed at by the treatment are: first, soothing and protecting an inflamed area; second, exclusion of air; and third, a slight antiseptic action. For this purpose a moderately thick layer of absorbent cotton is taken, several times the size of the inflamed surface: for a medium-sized boil a piece one by two inches, with the fibers running the long way. Upon the center of the cotton a considerable mass of the following ointment is spread by means of a spatula, and this is then laid over the boil, and held in place by strips of adhesive plaster across the ends, but not passing over the boil. The ointment referred to is generally composed about as follows:

- ℞ Acidi carbolici, 5 to 10 grains;
- Ext. ergotæ fld., 1 to 2 drachms;
- Pulv. amyli, 2 drachms;
- Zinci oxidi, 2 drachms;
- Unguent. aquæ rosæ, 1 ounce.

M. Ft. unguent.

The relief given by this dressing is often very marked; the ointment soothes and protects the irritated surface, while the layers of cotton take up any outside friction. If comfortable, and unless disturbed, this dressing remains untouched twelve or more hours, when it is removed and a freshly spread piece immediately reapplied. If there has been any discharge the surface may be very gently cleansed with absorbent cotton, but he does not allow any squeezing. In many instances with proper internal and general treatment the boil aborts, and subsides without discharging; when this does not happen, it ruptures spontaneously in a relatively short time, and he practically never finds it necessary to incise it. This treatment he uses in all stages of boils, keeping the ointment on until the boil is quite healed. If other boils form he directs it to be applied early, and by this means they are frequently aborted. He

wishes he could express in a measure some of the delight expressed by patients when thus dressed in the comfort and relief obtained, as compared with the sensations and results from other treatment which they have previously had. We should, he thinks, seek for the *jucunde* in our treatment as well as the *cito* and *tuto*, and from no small experience he can say that this treatment acts quite as quickly and surely as it does pleasantly.

2. *Carbuncles*.—As a carbuncle is in reality but a large boil, or a conglomeration of boils (with, of course, certain anatomical differences), the local treatment with the author has been much the same as that just described. Both early and late in the disease he has put on an ointment like the above, thickly spread on cotton, and fastened at the ends with strips of adhesive plaster. Not only on the back of the neck, but also on the face and elsewhere, this dressing proves most comfortable and serviceable, and he has not had occasion to incise a carbuncle since November, 1882—nearly fifteen years ago. The patient died from this and other complications, but there has not been a single case with such result in his practise since. He has applied this treatment to some large and formidable carbuncles, and has always thus far found that the pus would find exit rapidly enough, and the healing progress satisfactorily with this dressing. Occasionally it is necessary to aid in its expulsion by very slight squeezing or by removal of sloughs with the forceps. On some occasions febrile and other symptoms have at times seemed to warrant more active interference with the knife, but, although urged to it in consultation, he has adhered to this plan of treatment, without incision, and has obtained results which warranted its continued employment; and from previous experiences with cutting, and from cases thus treated by others, he believes that the method suggested has the preference, both as to time occupied and final results, whereas on the point of pain and general comfort of the treatment it is far superior. He is quite prepared to admit, however, that possibly from neglect or other cause a very large suppurating carbunculous area might be formed which would demand very active surgical procedure, such as curetting, or even excision, with antiseptic dressing, but under the treatment outlined this has never occurred.

3. *Felons*.—It will no doubt excite surprise and criticism when he urges somewhat the same line of treatment for the various de-

grees of inflammation about the ends of the fingers which are known as paronychia, whitlow, and felon; but, having treated a very considerable number of cases in this manner during the last fifteen or twenty years, he is prepared to advocate it strongly. The cases referred to include not only those of superficial character, about the nail, but also those very deep seated, on the pulp of the finger, even when there had already been sleepless nights from the deep-seated throbbing. The ointment used here has always been the diachylon, or litharge ointment, prepared according to the formula of Hebra. This particular form of ointment he considers to be important, for he has not found such good results from that made by melting the diachylon plaster with oil or vaselin, as more recently proposed. The diachylon ointment of Hebra is prepared as follows:

℞ Olei olivarum optimi, 15 drachms;  
Plumbi oxidi, 3 to 6 drachms;  
Olei lavandulæ, 2 drachms.

M. Add the oil to two pounds of water, with constant stirring; the litharge is to be slowly sifted in while it is well stirred, fresh water being added as required. The ointment is to be stirred until cold, and the lavender added.

In winter a slightly larger quantity of oil is required to make a soft ointment. When properly made (and this is difficult to secure), this ointment is of a soft, buttery consistency, and quite sticky. The affected finger is to be plunged into the jar and a considerable quantity taken up, completely enveloping the first joint to a thickness of one-fourth of an inch. Over this are placed layers of absorbent cotton, and the whole loosely bound; sometimes it is more agreeable to spread the ointment on the cotton. It is generally desirable to renew the dressing about twice daily, but this is done with as little disturbance to the finger as possible, the old ointment being hardly disturbed, unless there is pus discharged.

The author cannot fully explain the benefit obtained by this dressing; but time and again he has seen the greatest relief, even after sleepless nights had been passed, and for many years he has prescribed this treatment with the greatest satisfaction and confidence. When applied early and in milder cases resolution takes place and no pus appears. But in those cases which are seen later or which are more severe pus forms and readily reaches the surface, and is either discharged spontaneously or by means of a painless prick through the dead skin. He has never had occasion to make the well known deep inci-



sion, even in certain cases where it seemed at first as if this would be required. He has repeatedly been surprised at the ease with which the pus has reached the surface. As remarked before, when it was necessary to aid its exit, this was done with a very superficial prick, entirely painless, and he has never seen any scar resulting.

It is quite possible that the most severe cases have not come under the author's observation, and he quite agrees that when pus has formed deep in the tissues and is burrowing under the tight fibrous bands which cross the tendons, a free surgical opening may be called for. But if taken reasonably early and the treatment intelligently carried out, he believes that in a very large proportion of cases the course will be such as he has before described.

#### CELANDINE IN CANCER OF THE FACE.

Dr. KRAINSKI, writing in the *Russian Ophthalmic Review*, records four cases of malignant disease of the eyelids and face in which he employed the celandine treatment. In two of the cases the neoplasms completely disappeared. In the other two there was distinct improvement, but the cases could not be followed up, and so the ultimate result cannot be stated. The time required for the destruction of the tumor was not more than a fortnight. Several injections were made in the sound tissue bordering upon the neoplasm. They were composed of equal parts of extract of chelidonium, sterilized water, and glycerin, four to eight minims of the mixture being introduced at a time. In addition to these a fifty-per-cent. solution of the extract in glycerin was applied externally twice a day and a dressing put on. The celandine did not affect the healthy tissues and was well tolerated by the conjunctiva. There was some pain for a few hours, and in two cases pyrexia. There was, too, a good deal of swelling around the tumor, and in one case suppuration at the situation of the punctures. Dr. Krainski has also given celandine internally in cases of cancer of internal organs where operation was impossible. A further paper is promised on this subject.—*The Lancet*.

#### THE CHOICE OF A MERCURIAL TREATMENT.

FOURNIER gives rules for administering mercury in different cases of syphilis. Leaving aside fumigation, baths, mercurial plas-

ters, etc., as antiquated, there remain three possible methods: (1) Ingestion; (2) inunction; (3) hypodermic injections.

The advantages of ingestion are: (a) Simplicity; (b) it being usually well tolerated by the mouth and intestinal tract; (c) its proved activity. The disadvantages are: (a) It may upset the digestion; (b) it is only tolerated in moderate doses, otherwise diarrhea and stomatitis appear; (c) it is therefore only suitable where a moderately active and not very rapid method is indicated.

The advantages of inunction are: (a) It is intensely active; (b) it does not, unless exceptionally, upset the digestion; (c) it leaves one free to give any other medicine by the stomach. The disadvantages are: (a) The trouble and time required are such that few patients will carry it out properly; (b) the course cannot be kept secret; (c) its curative effects are very unequal, probably depending on the way it is performed; (d) it is more likely than any other method to produce stomatitis of a very severe character.

As regards hypodermic injections there are two methods—namely, frequent or daily injections and occasional injections. The advantages of the former are: (a) It is an active method, whose activity can be regulated from day to day; (b) it does not upset digestion; (c) the stomach is free from other medicines. Its disadvantages are: (a) The possibility of local complications and the severe pain; (b) the impossibility of carrying it out properly outside a hospital. Occasionally injections are remarkably active, and sometimes work extraordinary cures not seen in any other treatment—such as the disappearance in a few days of large tuberculous syphilides, tertiary glossitis, gummatous laryngitis, etc. Of the disadvantages, some, such as stomatitis, are common to other methods; some, such as the almost inevitable injection nodules, are not of such importance; and some, such as phlegmonous inflammation, can be avoided by antiseptics. The great and unavoidable disadvantage is the pain. The author found that even such a small dose as  $\frac{1}{10}$  of a grain of calomel is often extremely painful. Of 400 calomel injections, the pain was bearable in two-fifths, intense in three-fifths, and in one-fifth of the latter intolerable. Many have therefore given up the treatment altogether. This is wrong, as it is very valuable in exceptional cases where a rapid effect is important or which do not yield to other treatment. Such cases are iritis and other ocular affections, ulcerated tuberculous syphilides, spread-

ing gummatous ulcerations, phagedenic chancre, gummatous laryngitis, etc. Exfoliative glossitis also often yields to no other treatment.

From the above summary certain indications are evident:

1. As regards the patient himself: If robust, ingestion will probably be most suitable, but if dyspeptic or cachectic this must be avoided; if his dentition is bad the best treatment is the perchloride by the mouth, inunction and occasional injection of large doses being altogether contraindicated. Injections are not to be used unless really necessary in workmen and others who live by the use of their limbs.

2. As regards the kind of syphilis: It may be roughly said that ordinary cases should be treated by ingestion, more severe by inunction, and the worst by injections.

3. As regards the object of the treatment: If it is for any particular symptom the course most suited for it must be chosen; if it is to cure the disease the first consideration is that the course must be a long one. Hence, owing to the disadvantages of inunctions and injections, ingestion is by far the best for this purpose, the course being interrupted now and then, but lasting for years.—*British Medical Journal*, Aug. 14, 1897.

#### POISONING BY METHYL BLUE.

The *Canadian Practitioner* for July, 1897, contains a report of three cases of poisoning by this substance, by HARRINGTON.

Seeing the report of the successful treatment of gonorrhea in the *British Medical Journal* of January 16, 1897, by James Moore, of Belfast, the writer adopted his plan and was exceedingly pleased with it in the small number of cases in which he gave it a trial. His prescription was:

Methylene blue, 3 grains;  
Potassium citrate, 15 grains.

To be administered three times a day, followed later on by an astringent injection of alum, three grains to an ounce of water three times a day.

On May 23 R. J. came to Harrington with an acute attack of gonorrhea, and he prescribed:

Methyl blue, 3 grains;  
Potassium citrate, 15 grains.

First konseal, mitte xii. One three times a day.

This prescription was put up by the same dispenser, and the patient took the first konseal at 2 P.M., and at 5.30 P.M. he had rather a distressing attack of vomiting. He came

to Harrington the same night, explaining his condition, and the writer concluded it had resulted from an irritable condition of his stomach, and advised him to continue his medicine. Saw him again on the 28th, and he said he had faithfully tried but could not retain it, and that it had purged him very much. The writer then made an investigation and found that the chemist had gotten a fresh supply of aniline, and that the new stock he had purchased was Merck's methyl blue (pyoktanin) and not methylene blue at all. In the first prescription he had written out the ingredient in full, methylene blue, but in the latter and in Cases 2 and 3, which had similar symptoms, he had abbreviated and written methyl blue, not thinking that methylene blue was an entirely different preparation from methyl blue or pyoktanin.

Cases 2 and 3 were similar, the main symptoms being vomiting and diarrhea.

#### LARGE DOSES OF ETHER IN THE TREATMENT OF UREMIC DYSPNEA.

After all that has been said of the injurious action of ether on the kidneys, it is interesting to learn that M. LEMOINE and M. GALLOIS, in a communication made to the Société de Biologie, an abstract of which appeared in the *Journal des Praticiens* of July 3, 1897, recommend its use in large doses in the treatment of various forms of nephritis, especially as a powerful means of mitigating and even curing dyspnea due to uremia. The authors state that one of them has employed this treatment for nearly ten years, and has succeeded in arresting with it the gravest forms of uremic respiratory disturbances, provided there was no actual renal lesion. It may be presumed that by this the authors mean no advanced lesion, for they go on to say that uremia due to acute nephritis, to acute renal congestion, to renal congestion occurring in the course of sclerotic nephritis, or to the infectious forms of nephritis, stands the greatest chance of being cured by means of the ether treatment. They aver that it is only the uremia depending on slow disorganization of the kidney by arteriosclerosis that does not yield to this treatment, although the comatose and convulsive forms are not readily affected by it.

The treatment consists in giving, every half hour or every hour, according to the severity of the case, two or three teaspoonfuls of ether in a little sweetened water. It is better, the authors say, to give part of the

ether subcutaneously—for example, to give a subcutaneous injection of two or three cubic centimeters of ether every three hours instead of the doses then due by the mouth. They say that they have given to some patients more than three hundred cubic centimeters without producing the least untoward effect, not even drunkenness; but it does not appear from the abstract into how many doses this amount was divided or whether it was given hypodermically or by the mouth. M. Lemoine and M. Gallois state that the ether occasions an abundant diuresis, improves the pulse, and relieves the respiratory spasm. They regard its employment as worthy to be classed with that of blood-letting so far as the result is concerned.—*New York Medical Journal*, July 24, 1897.

#### THE DIAGNOSTIC VALUE OF TUBERCULIN.

In the *Boston Medical and Surgical Journal* of August 5, 1897, FRANKLIN M. WHITE in writing on this subject points out that objections have been raised to the use of tuberculin, even for diagnostic purposes on the ground that there may be danger of poisoning the patient, or of stirring up latent tubercle bacilli and offering them a better opportunity for growth. He can only say that the method of diagnosis in his hands has been productive of no ill results, as far as he knows, beyond a day's discomfort to the patient, and that the occasional dangers of continued tuberculin treatment of tuberculosis in general, including advanced cases, have not been met with in using a single dose of tuberculin for diagnosis in incipient cases. When we see the brilliant results obtained in the diagnosis of tuberculosis in cattle by this method—a correct diagnosis in over ninety-nine per cent. of the cases—it seems as if a further experience in the observation of the reactions and a better knowledge of the most desirable dose were all that were necessary to make this a diagnostic method of the greatest value for man. It was a great advance when Koch gave us the method for finding the bacillus of tuberculosis, but before the diagnosis can be made by the microscope, it can usually be made without it. When we find the bacilli, our diagnosis is certain; but failure to find them does not exclude the disease. The tubercle test is much more helpful in early diagnosis. An injection will show the presence of the bacilli long before the inflammatory process is apparent to sight

or touch; and, on the other hand, a negative result gives absolute surety of freedom from tuberculosis, which of itself is often of the greatest value.

The author summarizes his views as follows:

1. The tuberculin method is simple and easily applied. An absence of reaction after injection indicates almost invariably an absence of tuberculosis more than four times out of five.
2. The method is especially applicable to the diagnosis of incipient pulmonary tuberculosis and of glandular, peritoneal, pleural and bone tuberculosis, where the bacilli cannot readily be found.
3. The general febrile reaction is a more generally useful diagnostic phenomenon than the local reaction.
4. The use of small preliminary doses of tuberculin is to be avoided on the ground of producing a gradual tolerance and a loss of general reaction.
5. The size of the best dose for diagnostic work is a matter for further study. It is probably between five and ten milligrammes for adults.
6. Ruedi's statement, that females react to tuberculin less readily than males, has not been confirmed by White's results.

#### THE TREATMENT OF ASTHMA BY ANTI-DIPHTHERITIC SERUM.

Basing his theory upon the principle that the channels through which drugs are eliminated are those where they exert their therapeutic action, REVILLIOD (*Rev. Méd. de la Suisse Romande*, Nov. 20, 1897) argues that the increased secretion seen after an injection of serum in all the mucous membranes, the similarity of the acne produced by the iodides, and the urticarial and multifiform erythemata which are observed in asthmatic patients and in subjects treated by serum therapy, show that the mode of elimination of these drugs and the poison which Nature is attempting to eliminate in asthma are the same.

This reasoning led Revilliod to conclude that the aid which the iodides give to the asthmatic patient is assistance in the elimination of the particular noxious substance which is eliminated through the respiratory tract. And it is because of a similar physiological effect that he uses the serum, and not on account of any supposed antitoxic property.

The author reports a series of interesting

cases in which he injected antidiphtheritic serum in ten cubic centimeter doses during an attack; the action was almost immediate, and the crises did not return for nearly a month, when the injection was again repeated. In the first case the patient had had asthma for six years. An amelioration followed the first injection and increased after each injection, so that after ten injections made during five months the patient was completely cured. In the second case an asthma of seven months' duration was permanently cured in ten days by three injections. In the third case, of eight years' duration, six injections in two months resulted in a cure. In four other cases, although ameliorations have taken place, permanent cures have not been effected as yet.

The author does not believe that definite conclusions can be drawn from such a limited number of cases, but the successes which he has obtained lead him to believe that this method of treatment is worthy of the consideration and further study of the profession.

#### *PUERPERAL ECLAMPSIA: ITS ETIOLOGY AND TREATMENT.*

This subject, of never-ceasing interest to the general practitioner and obstetrician, is dealt with so practically by Dr. POTTER in the *Buffalo Medical and Surgical Journal* for September, 1897, that we have abstracted a large part of the article for our readers. Dr. Potter insists that in order to arrive at an intelligent treatment there must be a clear understanding of the conditions we are called upon to treat. It must be understood that we are dealing with a subtle toxemia not yet understood as to origin or material, nor even as to its *modus operandi*, but still one that arises from ingesta, intestinal putrefaction, and fetal metabolism, one or all, and that the organs of elimination are either sluggish or suspended in action. Symptomatically we usually have to contend with severe headache, edema, albuminous and scanty urine, diminished urea excretion, and finally, cyanosis, convulsions and coma, or semi-coma. The first group of symptoms pertain to the preeclamptic state and the last to true eclampsia.

Again, the woman may be anemic or plethoric, young or middle aged, a primipara or multipara, and the symptoms grave or moderate in their manifestations. Finally, the eclamptic seizure may be antepartum, intrapartum, or postpartum. All these factors

serve to modify or control the plan of the treatment to be proposed in a given case.

The treatment of eclampsia, too, should be classified into (a) preventive, and (b) curative. The preventive treatment may be subdivided into medicinal and hygienic, and the curative into medicinal and obstetric.

The preventive treatment of eclampsia affords an interesting field in which the clinician may display his talents and ingenuity in the application of hygienic measures and drugs to avert an impending danger of the gravest import. Given a pregnant woman in the seventh or eighth month with the prodromes of eclampsia—that is to say, who manifests the phenomena incident to the preeclamptic state—and what shall be done?

Manifestly, the first duty will be to interrogate the kidney as to its sufficiency and integrity. A qualitative and quantitative analysis of the urine must hence be made at the outset. Albuminuria is not a reliable symptom of renal disease or insufficiency, nor is a scanty twenty-four hours' output an unfailing index of kidney failure; nor yet is a diminution of urea excretion an infallible indication of approaching eclampsia. Exceptionally, all of these conditions may co-exist and yet eclampsia not result. These are indications singly and collectively that there is existing toxemia, that there is defective elimination, and that something must be done to correct a faulty relationship between nutrition and excretion.

If the prodromes and the physical signs are recognized early, it may be expected with reason that hygiene and medicine will correct the errors that are so rapidly tending toward eclampsia. Air, food, and drink must be supplied in ample quantities and of good quality; so, too, must we insist upon exercise, active or passive, walking, driving, light calisthenics or massage, according to the taste or tolerance of the patient. These are all good agents to employ, but the object sought should be to limit the source of toxins that are being absorbed and to promote their elimination.

One of the surest ways in which to control the supply of toxins appears to be, from abundant testimony, to place the woman upon an exclusive milk diet. This will serve at once not only to diminish the supply of toxins, but to increase the fluids of the body, flush the kidneys, and favor the elimination of toxic material. Water, too, should be freely given in definite quantities and at regular intervals. Distilled water is one of the best

diuretics that can be administered to a woman in the eclamptic state. Two quarts a day is not too much, and it may be given still or charged, according to the taste or desire of the patient.

The bowels of the preeclamptic, too, demand supervision. Constipation must not only be prevented, but intestinal toxins must be unloaded, and the intestinal tract kept free. These are commonplace observations perhaps, but they are essentials that cannot be omitted in a consecutive clinical picture of the management of a woman with eclamptic prodromes. Drugs are not specified in kind, but each physician will invoke the aid of an intelligent pharmacology. It should be remembered, however, that forcing the kidneys without supplying copious fluids is to be reprehended. Potassium salts that have been so frequently employed, and as the writer believes to the detriment of eclamptic patients, should be avoided. They favor the production of intestinal toxins, and beside tend to diminish red blood-corpuscles—an element that must be conserved.

There are two other remedies of which the author speaks because they belong to the therapeutics of the condition we are discussing—that is, the preeclamptic state. These are blood-letting and glonoin. If there is a full artery at the wrist with a tendency to cyanosis in the preeclamptic, venesection may be resorted to with benefit. One good full bleeding is permissible, but it should be used with caution in repetition. Its employment during an eclamptic seizure is to be feared, but here it is admissible, and in selected cases it will often prove beneficial. If there is high arterial tension—vasomotor spasm—glonoin in full doses is a valuable remedy. It combats this condition without depleting the patient, and, moreover, helps to set the kidney to work.

Let us now dismiss the preeclamptic state and consider the treatment of true eclampsia: Suppose a physician is summoned as a consultant in a case where convulsions have already set in—what is to be done? Here let us recall the three forms of eclampsia: (a) antepartum, (b) intrapartum, (c) postpartum. The treatment will be, first, medicinal, and second, obstetric. The first indication of treatment in antepartum eclampsia is to control the convulsions. An attempt wisely enough may be made to do this through the administration of chloroform by inhalation as well as the administration of chloral by the rectum. An eclamptic

woman swallows with difficulty or not at all, as she rarely rouses to full consciousness between the fits; hence it is better to administer chloral by the rectum. The writer prefers chloroform tentatively in these cases. If the convulsions are not promptly controlled or diminished in frequency or severity by its vigorous and skilful administration, he institutes measures at once to empty the uterus of its contents; and this brings us face to face with the most interesting question in the obstetric management of puerperal eclampsia.

A considerable experience has convinced the writer that a prompt evacuation of the uterus constitutes the most important method of dealing with eclampsia. While the womb remains gravid we are hampered in our therapeutics. Two lives are at stake, and in our anxiety to preserve both we may save neither. By addressing ourselves assiduously to a speedy delivery of the fetus we contribute in the largest manner to the conservation of both lives. With the fetus once delivered there is a freer opportunity to deal with the woman in the most masterful or even heroic manner. Fortunately eclampsia rarely occurs until the fetus has reached the period of viability, hence its speedy delivery becomes its greatest safeguard; for every hour increases its liability to death from maternal toxemia, as well as diminishes its chances of survival after premature delivery.

How many times has the fetus been destroyed by prolonged chloroform anesthesia, full morphinism, or extreme chloralization? One or all of these means, to be sure, may be used with comparative safety to the mother if the fetus is out of the way. How often, too, has the fetus succumbed to prolonged intoxication from the mother's blood?

If the author is called to an eclamptic woman who is within a month of term he lays down as a cardinal principle for his own guidance that it is his duty to proceed with all diligence to effect delivery. Why should not this be done? Will any one tell us why it is not good obstetric practise to proceed to aid Nature in the accomplishment of her own desires? Eclampsia is an expression of the economy that it has carried an offending fetus as long as it can be tolerated. The toxemia incident to its presence can no longer be endured without calamitous results, and eclampsia is but an expression of that fact—a danger signal. If we should appeal to statistics they would tell us that the mortality in antepartum eclampsia is seven

times greater than in postpartum eclampsia. Surely this speaks in no uncertain fashion commendatory of speedy delivery. But we are told that convulsions do not always cease after delivery. True, but is that a valid argument against the induction of labor? Postpartum hemorrhage does not always cease after the delivery of the placenta and secundines, but who will affirm that it is not proper in such a case to begin the treatment by clearing out the uterus? If convulsions continue after delivery we are now in a better position to push medicinal treatment, if need be, to its extreme limit than before. Purgatives, morphine, chloral, chloroform, diuretics and diaphoretics may all be employed with greater expectations and less danger than before delivery.

The writer has induced labor in a number of instances near the end of the eighth month, and always with most satisfactory result. In several of these cases, girls and boys now in the heyday of youth are living to gladden the hearts of mothers also rescued from a desperate strait. In no one instance has he ever regretted the induction of labor, while on the other hand he recalls a few times in which he has blamed himself for not invoking its aid. Occasionally, too, he has induced labor where there has been exaggerated preeclamptic conditions without convulsions—edema, albuminuria, semi-coma, and impending danger. These also have afforded gratifying results in living children and cured mothers.

Having determined to evacuate the uterus, how shall it be done? There are several methods recommended, but now one and then another seems applicable to a given case. For the most part, in antepartum eclampsia, dilatation, first practised with steel dilators if need be, then with manual stretching of the os and cervix, will accomplish the work to the best advantage. Exceptionally, however, extreme measures may become necessary, but only rarely can the deep incisions of Dührssen be required. So, too, should Cæsarian section be reserved for extreme complications like deformed pelvis, or to be done in the interest of the fetus when the mother's condition seems to be hopeless. In antepartum eclampsia, after obtaining dilatation, it is a good plan to terminate labor at once with the forceps under profound anesthesia.

In postpartum eclampsia the treatment must of necessity be medicinal, just as it must also be in the antepartum variety when convulsions continue after delivery. The

author has purposely avoided including *veratrum viride* in the group of medicinal agents which he would employ, because he deems it dangerous, uncertain, and deceptive in its action. It is but a symptomatic remedy at best, and it has always seemed that its employment was analogous to that of antipyretics in typhoid fever or pneumonia. These dangerous drugs seek to reduce the temperature at the expense of cardiac force without in any way exercising any influence over the real cause of the disease. So, too, with *veratrum* in eclampsia; it reduces arterial tension and cardiac pressure without exercising special influence over the progress of the malady. Moreover, it may easily be given to a dangerous degree even by careful hands. The author says he fears that many cases of eclampsia have succumbed to the indiscreet employment of *veratrum*, chloroform, chloral, and other powerful cardiac depressants; or, in other words, that these agents, though producing physiological action and apparently controlling the convulsions, yet do so at the expense of the tone and force of the heart muscle.

Blood-letting for similar reasons should be discreetly employed and limited to a few cases of the antepartum variety with plethoric habits and manifesting cyanosis. In the medicinal treatment principles are only discussed and not details. These latter will easily be supplied by experienced and well-trained physicians.

There remains one variety of eclampsia to be mentioned—namely, that of pregnancy as distinguished from eclampsia appearing just before, during, or after delivery. This form, though representing, statistically speaking, the most dangerous variety, nevertheless is one in which there is more time for deliberate action. It is here, too, that medicinal treatment offers better promise, hence the question of evacuating the uterus may be deferred until the other manifests failure and inadequacy.

Premature delivery may be induced in these cases by passing an aseptic bougie well up the fundus uteri externally to the membranes. Its extremity should be coiled within the vagina and retained by antiseptic packing. In a few hours labor will set in and can then be terminated rapidly if the occasion should so demand. Eclampsia occurs proportionately with greater frequency as the woman advances toward term, and *accouchement forcé* is more easily put into practice in the antepartum variety.

Finally, to promote the elimination of toxic material the value of diuresis, catharsis and diaphoresis should not be forgotten; neither should the means of the hot-air bath and the hot pack be overlooked.

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*THYROID GLAND EXTRACT AS A GALACTAGOGUE, WITH A NOTE ON THE CLINICAL EXAMINATION OF MILK.*

In the *Intercolonial Medical Journal of Australia* STAWELL concludes a paper with the above title by the statement that while he is fully alive to the danger of making generalizations about treatment from insufficient data, and especially when the conclusions are based upon only a few clinical observations, it nevertheless seems that there is sufficient evidence to enable him to say that he has found the extract of thyroid gland to be an efficient galactagogue in certain cases, and that he has found the milk secreted under this influence to be of good nutritive quality. He thinks it improbable that, in the cases he quotes, any of the ordinary circumstances that cause a variation in the flow of milk existed markedly enough to have influenced in any way the nature and amount of the milk secreted, for he purposely refrained, in each case, from making any alteration in the general life and habits or diet of the nursing mother.

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*THE SURGICAL TREATMENT OF RETRO-CÆCAL ABSCESS IN APPENDICITIS.*

Dr. DURET, of Lille, read a paper upon "The Surgical Treatment of Retro-Cæcal Abscess in Appendicitis" at the French Congress of Surgery, held at Paris on October 18-23, 1897. He stated that these abscesses are necessarily of common occurrence, as the appendix is situated behind the cæcum in more than twenty per cent. of the bodies which have been examined to ascertain its exact position. Besides, a certain number of these abscesses are caused by infection from a distance, the infective material being brought by the veins and lymphatics to an appendix which may or may not be normally situated. A retro-cæcal abscess is characterized by a swelling in the right flank, which is well marked, even when the abscess is small. Usually such an abscess seems to be situated just behind the abdominal wall and in contact with it, so that it appears as if the abscess could easily be opened and the pus

evacuated without any danger, as the communication with the peritoneal cavity is cut off by adhesions. An incision, however, always shows how serious an error has been made in diagnosis. The peritoneal cavity is always opened, and a certain quantity of serous or turbid fluid escapes. There are no adhesions, the distended cæcum is at once seen, and unless the greatest care is taken pus deluges the peritoneum.

Dr. Duret recommends the following treatment to avoid disaster in these cases: First, to isolate the cæcum completely from the rest of the peritoneal cavity after the abdomen has been opened by fixing the parietal layer of the peritoneum to the cæcum with a continuous suture, and closing the two ends of the wound with two small pieces of iodoform gauze; second, opening the abscess by Hilton's method or with the point of the finger at the outer border of the cæcum, then emptying, scraping, and swabbing it; third, draining and Mikuliczizing it, and sometimes making a counter opening in the lumbar region; fourth, suturing the abdominal wall in three places to prevent subsequent hernia.

Dr. Duret gives details of several instructive cases treated in this manner where recovery took place without any accident.—*Treatment*, Nov. 25, 1897.

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*THE DIAGNOSTIC AND THERAPEUTIC VALUE OF "LUMBAR PUNCTURE."*

MONTI (*Medical Press and Circular*, Dec. 1, 1897) reaches the following conclusions as a result of his study of this subject:

1. Tapping, as a diagnostic or therapeutic adjunct, is quite worthless according to his own experiments; but it must be borne in mind that other investigators have discovered in the cerebro-spinal fluid proof positive of the tuberculous bacillus, as well as cultivation in other animals, to justify the assertion that it is constantly present. His own opinion is that a negative result does not destroy a positive clinical diagnosis.

2. In acute cases of meningitis cerebro-spinalis the cerebral fluid does not contain morbid products which, if applied to animals, as Heubner has shown, may serve to verify clinical observation.

3. When the acute stage has been passed and hydrocephalus is present, no diagnostic assistance can be obtained from the examination of the fluid.

4. As a therapeutic agent it is equally efficacious in meningitis cerebro-spinalis and

meningitis tuberculosa. The author qualifies this by saying that individual cases do improve when operated on early, often repeated, and large quantities abstracted. He recollects one in private practise of two months' standing that improved after each tapping, but ultimately died after three days' illness.

5. The writer states that his experiments are not sufficiently large in meningitis, chronic hydrocephalus, or chronic hydrocephalus in connection with tumors, to justify a critical record of their worth.

6. Further experiments are necessary to determine the quantity of fluid to be abstracted, the interval of time that should elapse between the operations, and how far the therapeutical value, if any, can be demonstrated.

#### *A NEW METHOD FOR THE RADICAL CURE OF INGUINAL HERNIA.*

Of the invention of new methods for the radical cure of inguinal hernia there seems to be no end, and the constant occupation of surgical ingenuity upon this subject may be taken as an indication that no perfectly satisfactory method has so far been devised.

The latest contribution in the way of a new method of operating comes from Dr. George Ryerson Fowler, professor of surgery in the New York Polyclinic, who, in an instructive and well illustrated article published in the *Annals of Surgery* for November, 1897, argues that the methods of operation now in vogue, namely, that which bears the name of Bassini, with its modifications devised by Halsted and others, leave a weak spot in the abdominal wall at the internal ring, owing to the funnel-shaped protrusion of the ligatured sac, and the emergence of the cord at this point, which invite the recurrence of the hernia.

McEwen's method of avoiding this defect, by fixing the folded sac under the internal ring, Fowler criticizes as difficult to exercise satisfactorily. Kocher's method of drawing the displaced sac outward through an opening in the aponeurosis of the external oblique toward the anterior spine of the ilium, and attempting to close the canal without incising its anterior wall, is only applicable in cases without pathological alterations of the sac, and is mechanically a faulty method. Attempts to modify Halsted's operation, by directing the cord upward and outward for a short distance on its emergence from the abdominal wall and fixing it by sutures, have proved unsuccessful, as the weight of the

testicle soon proved sufficient to drag the cord down into its normal direction.

As a result of recent experiences in which herniæ have recurred in adults after operations which followed the essential feature of the Bassini operation—namely, the displacement of the cord directly forward through the internal ring and muscular parietes—Fowler has devised a method the essential feature of which consists of an intraperitoneal or backward displacement of the spermatic cord, allowing the complete closure of the internal ring by sutures. The essential features of the operation are the following: (1) A curved incision of the skin, allowing a flap to be turned upward, and exposing the canal, the anterior wall of which is incised; (2) separation and isolation of the sac and cord; (3) cutting away the sac at the level of the abdominal wall; (4) isolation of the deep epigastric artery and vein, and their division between ligatures; (5) incision of the posterior wall of the canal, including the transversalis fascia and peritoneum, upon the finger inserted through the neck of the sac. The operation is then completed by placing the spermatic cord within the peritoneal cavity, and uniting the transversalis fascia and peritoneum by broad approximation sutures in front of it until the lower end of the gap in the posterior wall of the original inguinal canal is almost reached. The cord is then brought forward through the newly formed external ring.

The canal is now closed by sutures of kangaroo tendon, which include the conjoined tendon and the aponeurosis of the external oblique upon the inner margin, and Poupart's ligament upon the outer; the new point of emergence of the cord is strengthened by the displacement outward of the pubic attachment of the corresponding rectus muscle.

Fowler commends his method as the only one which allows obliteration of the internal ring and inguinal canal, and has employed it in six cases, which, however, are of too recent date to allow of any estimate of permanent results. Although this method has certain features to commend it, the simpler operations of Bassini and Halsted with their modifications have of recent years met with such pronounced success that there can be no doubt of their efficiency in a large proportion of cases; and in those which present no extraordinary difficulties, there would seem to be no reason for discarding them for a method which is complicated by the additional steps of tying the deep epigastric ar-



tery and making an extensive incision into the peritoneum.

The conditions presented to the operator by different cases of hernia vary so greatly that no one method can promise success in every case. Experience may prove that in certain cases of large and long-existing herniæ in adults, in which the whole posterior wall of the inguinal canal is stretched and protruded forward, and in which there is marked stretching and atrophy of the muscular and aponeurotic structures, Fowler's method will have distinct value. The operation is certainly ingenious, and is devised to meet certain well known faults of the older procedures as applied to this class of cases.

Up to the present time no perfectly satisfactory method of disposing of the cord in these cases without the extremely undesirable alternative of castration has been devised. If Dr. Fowler's method shall prove to have solved this problem, it will have very definite value.—*Boston Medical and Surgical Journal*, Nov. 18, 1897.

#### INJURIES TO THE SKULL, INVOLVING THE BRAIN, ITS COVERINGS, AND CIRCULATION.

In the *International Journal of Surgery* for November, 1897, EARLES presents an interesting paper, in which he calls attention to the fact that Horsley has clearly established that brain scars, scars in the dura and depressed fragments of bone frequently cause epilepsy, and that the removal of those causes usually results in benefit to, and often in cure of, the patient. With this well defined and demonstrated proposition before us, combined and taken in connection with other clinical facts equally well established, we have reasonably safe guides to follow in the treatment of all head injuries. In attempting to outline a general plan of treatment, we should place in the rank of first importance surgical cleanliness. Without this no one can hope to do satisfactory work upon the skull, its coverings, or its contents. We must not forget that infection is easily carried from the scalp to the brain or its coverings, through the channels already referred to, and that such an occurrence cannot be too profoundly regretted. When resulting through the carelessness or unsurgical habits of the medical attendant, it cannot be too emphatically condemned. The experience of all who work in this particular field goes to prove that we can enter the cavity of the skull, and there

deal with conditions demanding surgical attention, with the same confidence and assurance of securing desired results that we possess when we enter the abdominal cavity, providing we exercise the same care and practise the same cleanliness.

In all operations upon the skull, the entire head should be shaved and thoroughly disinfected before the skull wall is opened. All foreign matter should be thoroughly removed, even though the chisel and hammer be necessary for the accomplishment of this result. The latter is often necessary where dirt, hair, etc., become lodged in the line of fracture. The surgeon's hands, instruments, etc., should be thoroughly disinfected, and nothing of whatever kind or nature allowed to touch the wounds except that which is known to be surgically clean. The next care of the surgeon is to ascertain, if possible, the nature and extent of the injury. If there be a fracture with depression, this can only be done by exploration. Removal of a section of bone, either with the trephine or chisel, places the field of injury within visual observation, and clears up questions that must otherwise remain in doubt. In all cases sufficient bone should be removed to permit of a thorough inspection of the field of operation. With the injured parts before us and readily reached, we treat them as we treat injured structures in other parts of the body. All foreign matter and blood-clots are to be removed, the parts thoroughly cleansed, and hemorrhage controlled either by hot applications, pressure, or the ligature. If these methods fail to control the hemorrhage, an iodoform gauze tampon may be used. After thorough cleansing and control of hemorrhage, any ragged edges in the wound must be removed, securing, if possible, smooth, coapting surfaces. The wound in the brain should first be closed with catgut sutures. The wound in the dura mater is then carefully united with catgut, and the scalp wound closed in the usual way, with or without drainage.

When the operator has reason to believe that his work has been aseptic throughout there is no necessity of drainage. When, however, he has reason to fear subsequent septic trouble, it is safer practise to insert a gauze or rubber tube drain. A few strands of catgut often serve a good purpose by draining such wounds of their accompanying and unavoidable exudate. The patient must be put at physical and mental rest, and his condition closely watched for at least ten days. Any evidence of septic disturbances

about the wound demands prompt interference on the part of the attendant. The scalp must be opened up and the parts thoroughly irrigated and cleansed. If the trouble be deeper seated, the dura must be opened and drainage inserted. In short, having failed to secure an aseptic result, we must now rigidly enforce the antiseptic line of treatment until healing is complete.

It must not be forgotten that the granulation and scar tissue resulting in wounds that do not heal by first intention are prone to be followed by dreaded remote effects which are often immeasurably worse than death. Even a cicatrix of the scalp has been known to be followed by epileptic seizures, while scars in brain tissue or dura mater are classed by all as among the prime factors in the causation of this much dreaded and mysterious malady. We should, therefore, leave nothing undone that can in any way conduce to or further the prospects of healing by first intention, for while we may without it secure reasonably satisfactory immediate results, we cannot hope for satisfactory remote ones.

In the event of epilepsy or other serious manifestations following injury to the head, it is the plain duty of the surgeon to look for the cause, and if found, to remove it as soon as may be. Opening down upon the supposed seat of injury, either with trephine, chisel, or both, the depressed bone should be elevated or removed, and any scar tissue found, either in brain or dura, must be excised. This can be done with almost perfect safety if ordinary care and surgical cleanliness be observed. The happy effects of such operations are often manifest, and while we are still in doubt as to their *modus operandi*, the results, at least, are very gratifying. Even if we admit that the so-called cures of traumatic epilepsy through operation are entirely due to the moral effect, the results are no less valuable to the patient. Each case should be carefully studied in all its details, and should be treated in and according to the light which the researches, observations and clinical experiences of the past have furnished.

#### SYPHILIS OF THE NOSE, THROAT, AND LARYNX.

VAUGHAN (*Medical News*, Nov. 20, 1897) says that the diagnosis of a syphilitic ulcer in the pharynx is sometimes very difficult to make, but one cannot be far wrong in suspecting any ulcer occurring in the throat which has a floor covered by a dirty purulent

slough, and which is surrounded by angry looking, very much inflamed mucous membrane. It has been the author's good fortune to observe several cases of tuberculous ulceration of the pharynx, and of malignant disease of the tonsils, which simulated very closely ulcers of syphilitic origin, and in which the diagnosis was determined with great difficulty. If ulceration has already commenced in malignant disease of the tonsil before the patient presents himself for examination, the differential diagnosis will be difficult; but when one bears in mind the history of the case; the fact that tuberculosis and malignant disease of the pharynx are rather rare conditions; that tertiary syphilis in this locality is commonly observed; that the syphilitic condition responds readily to treatment, while malignant tonsillar disease is not materially benefited; and that tuberculous disease of the pharynx is positively made worse, and all the symptoms of tuberculosis increased by antisyphilitic treatment, the diagnosis is somewhat simplified. A very safe rule, and one recommended highly by Lennox Browne, is to put the patient upon treatment for syphilis, and have him weighed daily. If he gains in weight steadily for several weeks the trouble usually is of specific origin; if he gains in weight for several days and then begins to lose, the affection probably is malignant; while if all the symptoms are intensified, the probability is that the disease is of a tuberculous nature.

The author has never seen a primary sore situated in the larynx, but the erythema, mucous patch, ulcerative process, and gummata, followed later by breaking down of the gummy tumor and subsequent formation of cicatricial tissue and occurrence of stenosis of the larynx in various degrees, are, with the possible exception of the mucous patch, common pictures to the laryngologist.

A quite marked symptom in a great many cases of syphilis in its early stage is the appearance of laryngeal catarrh, and only in one particular does this differ from an ordinary catarrh, the last named variety being usually relieved by topical applications, while they are only of limited value in the specific type, one being compelled to resort to antisyphilitic treatment in order to relieve the condition. The erythema is not so marked and is not so characteristic as when present in the pharynx, but it is sufficiently noticeable, particularly when associated with alternate patches of red and white situated on vocal cords, to lead one to suspect its specific

origin. Pain is generally absent. The condition may last a long time if untreated, but shows no tendency to pass into one of the graver manifestations of syphilis. If the vocal cords are involved there may be much impairment of the voice; in fact, sometimes the voice is completely lost. Mucous patches are of exceedingly rare occurrence in the pharynx, but when present are generally situated upon the upper surface and free margin of the epiglottis, on the arytenoids, or on the false vocal cords, sometimes being found on the interarytenoid commissure. The mucous patch in this condition, as elsewhere in the body, is resistant to treatment, and is very likely to recur.

Probably the most common manifestation of the disease in its tertiary form in the larynx is ulceration. This is preceded by an infiltration of the mucous membrane with inflammatory products, and is usually diffuse in character. Gummata are commonly situated near the posterior commissure, upon the arytenoid cartilages and epiglottis. At first they are small and of the same color as the contiguous membrane, but gradually they enlarge, soften, a small yellow spot appears in the center of each gumma, and finally a destructive ulcerative process begins. This is usually rapid, and frequently large areas are completely destroyed. When it occurs on the epiglottis entire destruction of the valve may occur before the patient can be brought under the influence of medicine. When much tissue has been destroyed there will, of course, after healing begins, be a formation of cicatrices, with resulting stenosis, and sometimes distortion of the larynx. When this occurs, the voice is permanently much altered in character.

In regard to the treatment of syphilis, when occurring in the nose, throat, and larynx, the author knows that to await the development of secondary symptoms, and then begin constitutional treatment, is the better course to pursue; but it appears to him that more favorable results are obtained when the patient is put upon some one of the mercurial salts as soon as the diagnosis of syphilitic infection is absolutely decided upon. Local cleansing of the primary sore with some mild antiseptic, as boracic acid solution, or better still, with iodoform (a most efficient but disagreeable remedy on account of its penetrating odor), is all that will be necessary during the first stage. Caustics locally applied during this stage undoubtedly do harm. Upon the appearance of secondary symptoms, either

inunctions with mercurial ointment, or the internal administration of some salt of mercury, will cause subsidence of the symptoms. When a mucous patch occurs, it should be touched repeatedly with tincture of iodine or solid nitrate of silver. Catarrh of syphilitic origin requires the administration of ferruginous preparations, and the spraying of the nasopharynx with mild antiseptic and alkaline solutions. In the coryza occurring in infants, the nose should be sprayed *cautiously* with a weak solution (two and a half grains to the ounce) of cocaine, or better still, should be cleansed, particularly when the crusts are very adherent, with a ten-per-cent. solution of menthol in olive oil. Menthol is somewhat similar in its action to cocaine; its anesthetic action is very much less, but it is particularly effective in that it relieves the congestion of the turbinate bodies and allows respiration to take place through the nasal passages. Upon the appearance of tertiary manifestations the administration of iodide of potassium or sodium is indicated, beginning with doses of from five to ten grains three times a day, depending upon the tolerance of the patient, and increasing it several grains daily until the progress of the disease is checked. In some cases it is best to combine the iodide with mercurial inunctions. It must also be kept constantly in mind that the alimentary canal, the excretory apparatus and the skin must receive particular attention. Wholesome, nutritious food is absolutely essential to a sound condition of the alimentary tract. Mild salines and laxatives are occasionally required to stimulate excretion; and nothing is of more benefit in keeping the skin in a healthy condition than warm or hot bathing, which should be regulated by the attending physician. Smoking and the drinking of alcoholic beverages should be prohibited.

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*REMOVAL OF AN ANGIOMA OF THE  
LIVER BY ELASTIC CONSTRUCTION  
EXTERNAL TO THE  
ABDOMINAL CAVITY.*

KEEN, in the *Pennsylvania Medical Journal* for October, 1897, details his experience in this class of cases. The conclusions that the author has reached are as follows:

1. Experiments upon animals and operations on man have shown that tumors of the liver and even large portions of the liver can be removed without undue disturbance of its function. Experimental evidence in animals and clinical evidence in man go to show that

the liver tissue is regenerated and the loss made good (Ponfick).

2. That the escape of bile into the peritoneal cavity is not usual after such an operation; that by searing the raw surface, by ligation, by walling off with gauze, and by securing the stump in the abdominal wall, it is prevented, and even if it occurs, fresh bile is not infective, and therefore does not produce peritonitis.

3. The two dangers of hepatic operations are sepsis and hemorrhage, especially the latter. The former can be prevented by modern antiseptic methods; the latter can be mastered by ligation, by the cautery, by the elastic ligature, or by pressure, or still better, by a combination of these means.

4. The removal of a tumor can be done by ligation, by blunt dissection, by the cautery, by the knife or scissors, or by a combination of these methods. If the base is very large or the tumor very vascular, an artificial pedicle can be made by the cautery and an elastic ligature applied.

5. In case a syphilitic tumor is suspected, no operation should be done until after a full trial of antisyphilitic treatment has been made and failed. The case of Athenstiel (*Archiv. Klin. Chir.*, 211, 902), in which an abdominal section revealed the syphilitic nature of the large tumor, is most instructive. The operation was at once terminated, the abdomen was closed, and the patient entirely recovered under suitable treatment.

6. In all cases of doubt, and after a fair trial of antisyphilitic treatment, provided time allows, an exploratory celiotomy should be done. If the case is unsuitable for operation, because it is syphilitic or by reason of its size, adhesions, multiplicity of tumors, or for any other similar reason, the abdomen is simply closed and very rarely will any mischief be done.

On the other hand, if, as will very frequently be the fact, the case proves to be operable, suitable surgical measures can be immediately instituted.

#### TREATMENT OF INFECTED WOUNDS BY FORMOL AND PARACHLOROPHENOL.

LE DENTU (*Revue de Chirurgie*, No. 11, 1897) states that since the sterilizing power of formol is twice as great as that of sublimate solution, a lotion of 1:200 is ten times as potent as a sublimate solution of 1:1000; moreover, formol has an extraordinary deodorizing faculty, gangrenous tissues instantly

losing their mephitic qualities when irrigated with a solution of 1:200. Hence formol is a disinfectant and sterilizing agent of the first rank. Parachlorophenol is five times as potent as carbolic acid, has less odor, is less irritating, is less toxic, though it is readily absorbed and may act violently on the kidneys.

#### ABDOMINAL CONTUSIONS.

DEMONS (*La Semaine Médicale*, October, 1897) describes three results of abdominal contusions: (1) injury of the abdominal wall; (2) injury of one or more organs; (3) injury of intra-abdominal organs while the abdominal wall escapes. It is often difficult to determine the force or extent of the injury. Details, even the shape of the wounding agent, are important. Narrow bodies, the action of which is exerted on a small area, reach more deeply by overcoming resistance of the abdominal parietes more easily than larger bodies. Resistance varies with the age, state of obesity, state of relaxation, or contraction of the muscles. The direction of the blow is of importance. If perpendicular to the deeper structures, it is most harmful; when parallel, it tends to glide off; when oblique, the force is modified. Fragility varies with the different viscera or with the anatomical or pathological conditions at the time of the accident. Hollow viscera are more vulnerable when distended. Laceration is favored by morbid changes in the viscera. Immediate symptoms of such an accident vary. Pain is usual, but may be slight or severe, local or general, spontaneous or determined by pressure. Deep seated localized pain points to a wounded viscus. Sharper pain usually points to contusion of the abdominal wall. Ecchymoses or superficial swelling is of no diagnostic value for deeper injuries. Vomiting or slight tympanites does not afford any reliable evidence of injury. Rigidity of the abdominal walls, though not constant, is an important indication of visceral lesion, and almost characteristic of a wounded viscus. Diagnosis is often easy, but may be very difficult. Fractures of the skull, spine or limbs may mask other symptoms. With a hollow viscus severe contusion or slight perforation may give the same symptoms. Exploratory laparotomy should not be resorted to in extremely mild or severe cases. Whenever advisable it should be performed as early as possible—within twenty-four hours of the accident.—*British Medical Journal*, Nov. 27, 1897.

*THE TREATMENT OF COXALGIA.*

MÉNARD (*Revue de Chirurgie*, No. 11, 1897) has treated 615 cases of coxalgia; 261 were of the dry form, and aside from osteotomy were not subject to any surgical intervention. During the first and second periods the patients were put in bed and subjected to continuous extension, supplemented by immobilization when the disease was rapidly advancing. During convalescence these patients were gotten up with crutches and a fixation apparatus. In cases complicated by abscesses camphorated naphthol injections were used; of 108 such cases ninety-four recovered and six developed fistulæ. Abscess was generally preceded by pain, which was not relieved by rest or extension, but promptly yielded to a plaster dressing running from the armpit to the foot. The injections which cured the abscesses also led to a comparatively rapid cure of the hip disease. Even if they are not successful they render subsequent resection safer. In 146 cases the coxalgia was complicated by fistulæ, which usually developed before the patient entered the hospital. In fifty-five of these cases the fistulæ closed spontaneously without intervention. This usually occurred in infants from three to seven years old. Twenty-seven cases of coxalgia were subjected to resection before having been admitted to the hospital; seven were cured; nineteen still exhibit a fistula. Injections are futile in the cure of these fistulæ, since they do not penetrate to a sufficient depth. Drainage is also useless. When there is persistent, abundant suppuration and new abscesses form, and especially when the general health is declining, resection is always indicated.

The reporter resected seventy-four times in cases of coxalgia complicated by fistulæ. As little of the femur was removed as practicable to expose the joint, and in but six cases was a subtrochanteric section made. The ilium was the common seat of serious and persistent lesions. In thirty-one cases there was perforation of this bone, with more or less extensive intrapelvic granulations. The bone was removed very freely in six cases. Twice an attempt was made to secure union by first intention and was successful. Usually the wounds were drained. Consecutive curettage after resection was practised in seventeen cases; thirty-four recovered without fistulæ; fourteen left the hospital with fistulæ; three died. Hip-joint amputation was performed in four cases, and nineteen cases were still under observation.

Of the 615 cases observed twenty-four died—nine without operation (three of meningitis, two of visceral tuberculosis, and four of cachexia), fifteen after operation (four of operative shock, three of meningitis, three of cachexia, and five of tuberculosis). In patients carefully treated from the beginning of the affection luxation and cold abscesses only developed in the most serious cases. Cold abscesses are nearly always cured by injection; fistulæ are exceptional. When fistula has once been established spontaneous cure is less likely to occur and the results of operation are less favorable.

*REDUCTION OF CONGENITAL LUXATION OF THE HIP.*

LORENZ (*Revue de Chirurgie*, No. 11, 1897) has attempted reduction in 160 such cases and has had but five failures. The conditions essential to reduction are that the head of the femur should be brought in close proximity to the acetabulum and that the thigh should be carried in abduction to an angle of 90°, thus mobilizing the head of the femur. This is accomplished by flexing the thigh until it makes a right angle to the plane of the body, thus bringing the head of the femur behind at the posterior margin of the acetabulum. Vigorous traction is then made upon the femur in the direction of its long axis when it is flexed, and at the same time the bone is abducted through 90° of a circle, when succussion will denote that the end of the bone has slipped into place. At the same moment the thigh becomes longer and the head of the bone can be found in the inguinal fold.

*THE FORCIBLE REDUCTION OF SPINAL CURVATURES.*

PARKIN (*The Clinical Journal*, Nov. 17, 1897) contributes an interesting addition to our knowledge on this subject. He states that during the last six years he has had at the Children's Hospital many cases of spinal disease under his care, and naturally the degree of severity has been varied. He has had in all eight patients on whom he performed laminectomy. His object in doing laminectomy was to relieve the paralysis present to a greater or less extent in each case; but besides this the writer has found that after the operation it was as a rule very easy to correct more or less completely the deformity present. The author's idea of a properly performed laminectomy comprises removal of

the spines and laminæ over the portion of diseased spine, so as to relieve the pressure, if any, on the cord; next, the location of the disease in the affected vertebra and careful removal of all caseous material that can be got at, no matter whether one, two, or more vertebræ are affected; finally, when the wound is sewn up, with the help of assistants, the patient is held in such a position that the previously existing deformity is obliterated more or less completely according to the duration of the deformity in each case.

In cases of cervical disease the author has had strong traction made on the head whilst a poroplastic splint or plaster jacket was adapted to the upper part of chest and head. If in lower parts of the spine, he has had traction also made, whilst fixing a plaster jacket; and at the same time he has had upward pressure applied to the affected region, the patient being in the supine position, so that the spine at the diseased part was unfolded and made to assume a curve much more nearly resembling the normal. Such manipulations in no way interfere with the future comfort of the patient, and they certainly have an advantage from an esthetic point of view in the results obtained.

In all probability the manipulation required is less severe when the spine and laminæ have been removed than when this has not been done, for in old cases of caries there is often a certain amount of adhesion between the laminæ, as can be seen in museum specimens. It is not necessary to employ very severe traction to obtain the desired result.

During the convalescent stage, if the deformity has not been completely reduced Parkin has at a later date put the patient up again in plaster-of-Paris jacket, in such manner that the deformity is still further reduced. He has done this by suspending the patient by a bandage about four inches wide passed under the most prominent part of the spine, this bandage being attached to a movable bar, which can be raised if necessary until the patient's head and heels only touch the ground; this, it will be readily seen, allows the weight of the body at each end to unfold the spine still further. Sayre's jacket is then applied, and when sufficiently dry the bandage is cut, and the patient put back to bed. This mode of application has been adopted several times without the patients being at all inconvenienced, and he looks upon it as a valuable means of diminishing spinal deformity.

Even in ordinary cases of caries this mode

of application of a plaster jacket has many advantages. In the ordinary or vertical form of application the idea is that the weight of the body tends to straighten the spine. Obviously no one needs or wishes for a straight spine—*i.e.*, a spine straightened throughout; but what is advantageous is to have rectification or straightening of the spine at the spot where there is a tendency to undue flexion or undue extension; this is readily obtained in the manner described. Besides, the vertical position is very fatiguing and difficult to maintain until the plaster is set, and it is no unusual thing for a patient to faint during applications; whereas by the method in question the patient is more or less horizontal, the position can be steadily maintained whilst the bandages are carefully applied and until the jacket is sufficiently set, and the patient can be at once placed in front of the fire to dry without risk of breaking the jacket. The removal, as complete as possible, of all tubercular matter cuts short the course of disease. None of the reporter's cases (some of them of the worst type of spinal caries) were after operation confined to bed for more than three months, with the exception of one in which a general spread of tubercular infection occurred, which is only too common in cases not so treated; whereas similar cases of caries not operated upon block up hospital beds for many months, and then frequently drift to the infirmary or the workhouse. It would be advantageous to have reliable statistics of cases of spinal caries, with a view of ascertaining what proportion of hospital patients really get cured. It is surprising how they drift about, getting "cured" at one hospital to apply to another; and when they get worse or die it is considered only a natural result. So far the writer has followed up his own cases, and it has surprised him to find so many dying after a variable period. The worst cases and the least promising in every way have been those on which he has done laminectomy, and these are the very cases that have stood best the lapse of time, since all those referred to were operated upon over three years ago, and one of them more than five years ago.

It has been argued against laminectomy that it interferes considerably with the spine as a basis of support, and that it results in restricted movement of the back. Would it not be more accurate to state that the disease for which the operation is undertaken (caries) is really the true cause for both? For the centra are first undermined, and then the

weight of the head or upper part of the body is constantly transmitted through a weakened spine in such a manner as to produce deformity and rigidity, the latter at first muscular, tending to counteract the deformity, which finally becomes more or less fixed, producing a pathological rigidity. That the removal of the spinal processes and laminae can of itself interfere with the stability of the spine seems absurd, as these portions of the spine under natural conditions do not transmit the weight of the body; hence how can their removal affect a function which they do not possess?

In cases that do not require laminectomy at the Children's Hospital they apply a constant extending force by what is known as Hilliard's apparatus, with very satisfactory results. In this apparatus extension of the spine is obtained by constant traction on the pelvis by a pelvic band and counter-extension on the head by a head-band.

By the use of this apparatus in early cases of caries deformity is prevented, and prevention of deformity is a valuable result. In cases of existing deformity the apparatus is more valuable if a sand-bag is applied under the most prominent part of the back. The writer has obtained the best results with this apparatus in cases of cervical disease, then in dorso-lumbar caries, and would certainly recommend the apparatus in all cases where the deformity is not already fixed by bony changes.

There can be no doubt that a spinal curve such as exists in these cases of spinal caries is due to the patient being allowed to walk about or to lie on a bed which accommodates itself to the spine rather than the spine accommodating itself to a hard bed, in early stages of the disease. In most cases the curve is formed so gradually that it is not noticed until it is pronounced.

In private practise we seldom come across cases of marked curvature, because earlier notice is taken of the condition, and means adopted to prevent the curve becoming more marked.

Attacking a spinal abscess by cutting down on to the vertebræ themselves was suggested as far back as 1887 by Dr. Thomas Laffan at the Dublin meeting of the British Medical Association. It has strong recommendations in suitable cases. This can be done without removing both laminae, and in the dorsal region can be done without interfering with either.

The removal of the spinous processes only with a view of rendering less noticeable an

existing deformity without attacking the actual disease is a procedure that has only its esthetic effect to recommend it. The actual removal of the caseous foci before attempting the reduction of the deformity is a more scientific procedure.

In one of the writer's cases which did remarkably well for two months, tubercular meningitis was set up by, as afterwards seemed probable, a caseating gland. At the post-mortem the amount of repair in the spine far exceeded the author's expectations. Such repair is impossible after forcible rectification when the caseous mass is left behind; so that one anticipates that the after-history of such cases will include many instances of relapse, and many cases in which the disease has run its ordinary course even if no aggravation has occurred.

#### ON OPERATION IN SOME CASES OF TERTIARY SYPHILIS.

W. WATSON CHEYNE in the *British Medical Journal* of November 27, 1897, makes some interesting observations on this subject dictated from clinical experience. He says we all know that cases of tertiary syphilis sometimes occur which are extremely obstinate to treatment by iodides and mercury, in however large doses the former are administered; and under suitable circumstances a cure may be effected by operative intervention. In support of this proposition Cheyne cites the two following cases:

Some ten years ago a man, about forty years of age, consulted him on account of an obstinate syphilitic ulceration of the cheek. The patient had acquired bad syphilis some years before, and for two or three years had suffered from a serpiginous ulceration of the cheek in front of the ear which was of a most obstinate character. He had been under careful antisyphilitic treatment since its first appearance by men of the highest authority, and although the condition improved under treatment, no sooner was it left off than the trouble reappeared. As the writer could not suggest anything better in the way of medicinal treatment, and as the trouble was limited, excision of the diseased tissue was performed, and the gap filled up by a plastic operation. The wound healed, and the disease had not recurred some years later when the author last saw the patient. The tissue was examined microscopically, and simply showed inflammatory tissue; no trace of rodent ulcer or tuberculosis; but from the

history and clinical characters there could be no doubt as to its syphilitic nature.

The second case was that of a married woman, aged forty-four, who was admitted to the hospital on April 20, 1896, with symmetrical ulcerated patches on the extensor surfaces of both forearms. The history of the trouble was that it began about a year previously, with swellings about the upper part of the forearms, which were opened. At the same time she noticed a number of swellings over the extensor surfaces of both forearms, which became red and ulcerated and soon ran together into a raised, brawny patch occupying the greater part of the extensor surfaces of both forearms, and covered with numerous ulcers. She was treated for some time at another hospital, chiefly by boracic poultices, without any improvement. In the autumn of 1895 she went into the country, also without any benefit. In February, 1896, she came under the reporter's care, and was ordered large doses of iodide of potassium and mercury, the iodide being increased up to ninety grains a day. Under this treatment improvement followed, a considerable portion of the ulcerated surfaces healed, and the patches became less prominent. After a time, however, the improvement ceased, ulceration began again, and as she was suffering much pain in the arms, she was admitted to the hospital.

The patient was a weakly, anemic woman, who had been in indifferent health for some years. She stated that after marriage she had a healthy child, then a miscarriage, and then a living child who developed, shortly after birth, snuffles and rash; in fact, from her description there could be little doubt that the child suffered from congenital syphilis. No satisfactory history of syphilis could be obtained as regards herself, but since the miscarriage her health had been bad. On the extensor surface of each forearm was an extensive red, raised, brawny patch, practically symmetrical on both sides, extending from about three inches below the olecranon to about two inches above the wrist, and almost reaching the sides of the forearm. The surface of the patch was covered with numerous ulcers, and punched-out holes varying from a shilling to a florin in size, some circular, but many of them having run together into irregular forms. The patches were very tender. The case was shown to several authorities, who, with one exception (who thought it tuberculous), pronounced it to be tertiary syphilis. There was no thin

undermined skin around the ulcers, as is so characteristic of tuberculous disease. Iodides and mercury had a distinctly beneficial effect. Microscopical examination failed to show any tubercles, and animals inoculated with portions of the tissue remained well, and did not develop tuberculosis.

As the patient was incapacitated from work, and as it had not healed under anti-syphilitic treatment, the writer determined to excise the patch on one forearm in the first instance. This was done on the right side on April 25, 1896. An incision being made all around the affected part and about half an inch beyond it, it was raised with the fat and fascia beneath, and removed. The extensor muscles were left exposed over the whole extent of the wound, which was then completely covered by skin grafts after Thiersch's method. All the grafts took, and the patient left the hospital on May 16 with the arm well. When she was admitted she was at once put on large doses of iodide of potassium, combined with drachm doses of liquor hydrarg. perchlor., and emplastrum hydrargyri was constantly applied to the left arm. Under this treatment the left arm improved markedly, the brawny swelling went down, and most of the ulcers healed. After her discharge the same treatment was continued, but very soon improvement ceased, her attendance became irregular, and in a short time the arm was as bad as before.

Patient was readmitted on November 24, 1896. The left arm was in the condition previously described, and extremely painful; the right arm was perfectly healed, with no tendency to recurrence and no imperfection in the movements of the fingers or hand. On November 25 a similar operation was performed on the left side as has just been described as regards the right. The grafts took well, and she was discharged on December 24 quite well, and has remained so since.

The writer also refers to a tongue half excised for an obstinate ulcer, which had resisted large doses of iodide of potassium, and was looked on as epithelioma, but which did not prove to be so on examination by the microscope, and in which he found another gumma in the substance of the tongue. The patient lived for several years, and had no further syphilitic disease of the tongue.

In tertiary syphilis affecting bones the possibility of doing good by operative interference is much greater and more frequent. In-



cases of gummatous bone disease with ulceration of the skin over it, he has obtained healing without recurrence by thoroughly removing the affected soft parts and chiseling away the diseased bone just as one would treat a tuberculous disease, constitutional treatment being of course continued. One has only to look at a case of syphilitic necrosis, say of the frontal bone, to understand how slow must be the cure if it occurs at all by medicinal treatment alone. Not only is the sequestrum firmly fixed in parts and very slow in separating, but the bone around is extremely condensed and the circulation in the diseased area must be very imperfect. One can thus readily understand how by chiseling away the sequestrum, the diseased bone, and some of the condensed bone, naturally without any intermission of the constitutional treatment, healing may be greatly favored. Apart from this form of bone disease, good might be done by operation in cases where there is much thickening of an individual bone with great pain, where the effect of the iodide is only temporary, and where in order to be comfortable the patient has to go on taking iodides for an indefinite period. Such cases might quite well be treated in the same way as chronic periostitis and osteitis due to other causes—namely, by cutting down on the bone, dissecting off the thickened periosteum, and freely chiseling away the affected bone.

In the opinion of many a gumma does not contain the syphilitic virus, and is some peculiar after-effect of the poison. The writer's belief is that when the virus of syphilis is discovered it will be found in gummata as well as in the earlier syphilitic lesions, though possibly altered in its character, and no longer capable of causing a general disease. The general clinical history of gummata is not unlike that of tuberculosis, and gummata often remain localized for a long time, a patient with gummata in the leg, for example, often going on for a very considerable time without the appearance of disease elsewhere. Hence the local treatment of gummata by removal in cases which will not yield to medicinal treatment, or where the patient cannot bear a thorough course of treatment, is no less worthy of consideration than the local treatment of tuberculous lesions. Iodides are admittedly only temporary remedies; unless combined with mercurial treatment no permanent freedom is certain. Indeed, in some cases iodides alone seem to have the same disadvantage as was attributed

to tuberculin, namely, that the virus is, so to speak, liberated, and after the cessation of the treatment leads to fresh lesions in the neighborhood; and the removal of the local lesions may prevent the occurrence of further lesions in the vicinity, which rather seem to spread by local infection than by fresh deposit from the blood.

In very rapidly breaking down gummata, in parts where the result may be serious, as in the palate, thoroughly clearing out the gummata might be advantageously combined with vigorous antisymphilitic treatment. In mentioning this matter of operative interference the author would in no way intermit vigorous general treatment, nor does he think operation is necessary except in a limited number of cases.

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#### TREATMENT OF TUBERCULAR OSTEO-ARTHRITIS BY IODOFORM INJECTIONS.

DUPLAY and CAZIN (*Revue de Chirurgie*, No. 11, 1897), after experimenting with other drugs, have lately confined themselves entirely to intra-articular injections of iodoform in the treatment of white swelling of joints. Because of the pain attendant upon ethereal solutions of this product they have employed a mucilaginous emulsion containing thirty-three-per-cent. iodoform; five cubic centimeters of this mixture was employed at a dose, containing between twenty and thirty grains of the active drug. Injections were repeated twice a week; when improvement was slow every second day. In seven cases the results were very satisfactory. In the eighth case, complicated by suppurating sinuses, resection was necessary; the ninth required amputation. Results were especially good in white swelling of the knee-joint. Five patients treated for this affection were cured in from four to six months, and the cure was permanent. These patients were past the age of infancy and exhibited a local condition which apparently called for resection.

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#### METHOD OF RENDERING THE POSTERIOR URETHRA INSENSITIVE.

SCHARFF (*Centralblatt für die Krankheiten der Harn und Sexualorgane*, 1897, No. 1) states that it has long been known that a rectal suppository will deaden the sensitivity of the urethra to instrumentation.

Instead of using suppositories Scharff employs the various drugs in solution, and finds

that fifteen minutes after a rectal injection has been given the posterior urethra is insensitive.

For instance, in acute urethro-cystitis with imperious calls for micturition, and blood at the end of the act, he injects into the rectum five minims of:

Morphine hydrochlorate, 5 grains;  
Atropine sulphate,  $\frac{1}{2}$  grain;  
Distilled water, 3 fluidounces.

Or the same quantity of:

Ext. opium, 24 grains;  
Ext. belladonna leaves, 10 grains;  
Distilled water, 3 fluidounces.

In order to produce an antifebrile as well as an analgesic effect, Scharff employs:

Antipyrin,  
Sodium salicylate, of each  $12\frac{1}{4}$  drachms;  
Cocaine hydrochlorate, 16 grains;  
Distilled water, 3 fluidounces.

For cases in which instrumentation is painful and cocaine *per urethram* is not sufficient, Scharff injects into the deep urethra a gramme of the following solution, after he has thrown fifteen grains of antipyrin dissolved in a one-per-cent. solution of cocaine into the rectum:

Antipyrin,  $2\frac{1}{2}$  drachms;  
Cocaine hydrochlorate,  $1\frac{1}{2}$  drachms;  
Distilled water, 3 fluidounces.

The author also draws attention to the value of the faradic current in reducing the pain of the introduction of instruments along the deep urethra.—*Treatment*, Nov. 25, 1897.

#### TREATMENT OF LARGE EFFUSIONS INTO THE KNEE-JOINT.

DUMS (*Centralblatt für Chirurgie*, Sept. 18, 1897) recommends an active therapy for large effusions into the knee-joint, either by puncture or incision. Although massage, compression, etc., will in time cause the disappearance of the fluid, yet in the meantime the joint capsule has been so long stretched that a return of the affection is probable. Even when the fluid is promptly removed from the joint there is still danger of a recurrence, and the limb should be protected from strain for some time by being very gradually brought again into service. Dums' plan of treatment is as follows: As soon as the fluid is removed, a firm bandage is applied, and the limb fixed in an immovable apparatus in an extended position. At the end of a week the bandage is removed, a few passive motions made, and a starch bandage applied. One week later the patient may go about on crutches. From this time on a gradually

increasing amount of active and passive motion is allowed, and at the end of six or eight weeks a complete cure may be expected. This treatment appears tedious, but the relapses are fewer than those which follow the ordinary method.—*Medical News*, Nov. 20, 1897.

#### SOME EXPERIENCE IN THE DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEY, URETER, BLADDER, PROSTATE, AND URETHRA.

BAYARD HOLMES (*Annals of Gynecology and Pediatrics*, December, 1897) in discussing this topic concludes as follows:

Auscultatory percussion is a useful method of examining the kidneys, and can be relied upon to determine the location and size of these organs in thin and moderately strong or fat people.

Before a nephrotomy or nephrectomy the ureters should be catheterized in both men and women to determine the competence of the remaining organ.

#### RENAL SURGERY.

OBALINSKI (*Wien. Med. Woch.*, 1897, Nos. 6 and 7) gives details of seven operations on the kidney recently performed by him, as the result of which he has arrived at the following conclusions:

Most of the symptoms and signs presented, such as pain, enlargement of the kidney, and dislocation, with simultaneous changes in the urine, lead customarily to an indication as to which of the two organs is affected. It is only in exceptional cases that it requires the use of the cystoscope to decide which ureter is passing pure and which pathological urine. It is only in exceptionally well marked and rapidly progressive cases that an accurate diagnosis and certain therapeutic indications can be obtained by means of the ordinary methods of investigation; very often, and particularly in the early stages, direct inspection by exposure or incision of the kidney must be added. If it is difficult to tell whether the kidney or another organ (for example, the gall-bladder) is affected, an exploratory laparotomy should be made; if, however, the question is simply the extent of the kidney lesion, exposure of the organ by the retroperitoneal route will suffice. The kidney is so important an organ that it should only be sacrificed when it contains some growth absolutely dangerous to the whole

organism, or when the morbid process has rendered it useless. The author recognizes only two absolute indications for nephrectomy—enlargement of the kidney by new growth or tubercle. Other conditions revealed when the organ is exposed or incised may afford relative indications. Observations made in the course of nephrectomies show that a kidney which before operation can be recognized as enlarged and hard is as a rule quite, or almost, functionless, whereby we may often get an indirect insight into the functional capacity of the other kidney. As the modern tendency is conservative and in favor of nephrotomy rather than nephrectomy wherever possible, the separate investigation of the two sides is seldom called for, particularly as Pawlik's procedure for this purpose is difficult and often uncertain. Obalinski goes so far as to say that nephrectomy is absolutely contraindicated in certain conditions, as when the other kidney can be shown to be absent, when both kidneys are affected by the same disease, when the bodily strength does not permit so radical an operation, or when the kidney capsule is tightly adherent to other organs.—*British Medical Journal*, Nov. 27, 1897.

#### CLINICAL PHASES OF EXTRA-UTERINE PREGNANCY.

CORDIER (*Annals of Gynecology and Pediatrics*, December, 1897) in a consideration of this complication makes the following deductions:

Extra-uterine pregnancy is more frequent than is generally believed by most of the profession.

When left to Nature's resources the mortality is very high, the patient dying from primary hemorrhage or, secondarily, from sepsis and peritonitis.

The diagnosis is usually easy after the rupture takes place.

The surgical mortality, in skilled hands, when done in time, is very low.

No case of ruptured tubal pregnancy is out of danger until after a good ligature has secured the bleeding points.

The abdominal route is the best and safest manner of approach in these cases.

Most cases should be irrigated properly, and drained after removing the diseased tube and liberating all adhesions.

In all abdominal and pelvic diseases these cavities should be examined most carefully before making a diagnosis.

## Reviews.

THE ORIGIN OF DISEASE, ESPECIALLY OF DISEASE RESULTING FROM INTRINSIC AS OPPOSED TO EXTRINSIC CAUSES. With Chapters on Diagnosis, Prognosis, and Treatment. By Arthur V. Meigs, M.D. With one hundred and thirty-seven original illustrations.

Philadelphia: J. B. Lippincott Company, 1897.

This book, the result of years of keen clinical observation and painstaking pathological research, demonstrates that the symptoms of disease are rarely indicative of an affection of one particular organ, but that, as a general rule, they represent a multiplicity of lesions throughout the body—lesions, moreover, which frequently long antedate a fatal issue; and it also endeavors to demonstrate that the origin of disease may be investigated without an appeal to the theory of infection as it is ordinarily understood, which theory the author evidently considers of secondary importance in our etiological studies.

Chapter II is devoted to the disease of age, which, whether it manifests itself as rheumatism in its various types, as nephritis and its concomitants, or as ordinary senile degeneration, depends upon the same pathological lesion—wide-spread, insinuating, and progressive—namely, a morbid fibrosis bearing only slight resemblance to the natural fibrous tissue of the body, being, in fact, so different from it that the author doubts whether it is properly called fibrous tissue at all.

While the idea of a physiological death is attractive, Dr. Meigs points out that it is practically impossible, because what is known as physiological decay is identical in its pathological lesions with Bright's disease, or fibrosis, or, as he denominates it, the disease of age. Although fibrosis is essentially the disease of age, it is not necessarily confined to this period of life, but may appear "in middle age, and even in youth, presenting, so far as the pathological conditions are concerned, exactly the same appearances as are found in those old in years." So-called Bright's disease of the chronic form, with its essential features of fibrosis and certain changes in the blood-vessels, especially in the intima, is the type of the disease of age, with the understanding, as has just been stated, that the period at which the body begins to show the disease of age differs greatly, and that its earliest signs as the result of inherited tendencies may begin even in the embryological state. In the pres-

ent condition of our knowledge the author believes it impossible to determine whether the blood-vessel changes antedate the fibrosis and are its cause, or whether they are its consequence; or, on the other hand, whether the fact that the two are always in company is to be considered as a mere coincidence.

The last possibility, he thinks, is in the highest degree improbable.

Having thus described fibrosis as the underlying wide-spread pathological lesion of the disease of age, Dr. Meigs proceeds in Chapter III to consider more specifically the origin of disease, and, as before intimated, calls attention to the fact that many diseases arise in consequence of latent changes which occur without producing external evidence of disturbance on the one hand, and on the other that the disease is rarely confined to one organ, and that it is necessary to make "a general survey of the whole bodily condition, and a study of the relations of various parts one with another, to advance our understanding of the origin of disease."

A parallel is drawn between the malignant diseases, cancer and sarcoma, and the fibroid process, because fibroid changes in other places besides the kidney are as much a part of this form of Bright's disease as metastatic deposits are of cancer and sarcoma, and are of just as frequent occurrence.

Reaching the subject of consumption, or phthisis pulmonalis, Dr. Meigs discusses at some length the doctrines of Laennec and Niemeyer, and comes gradually to the period of Koch's discovery of the bacillus tuberculosis, which he acknowledges at the present time throughout the civilized world is accepted as the cause of the specific new growth which is the essential pathological lesion of so-called consumption of the lungs. Dr. Meigs himself, however, denies the bacillary origin of the tubercle, and, supporting his assertion with quotations from Sir Andrew Clark, as to the existence of cases of non-bacillary fibroid phthisis, thinks if they are admitted (and, according to him, admitted they must be), the bacillary doctrine falls to the ground. Having admitted a form of phthisis not due to bacilli, it follows that it must be caused by some disordered action of the bodily organism itself—for example, inflammation—and such being the case, he regards it, with Sutton, as more logical to look upon the bacillus as a feeder on dead tissues, and not as an agent which caused the tissues to die, or to assume the morbid

condition which we call phthisis pulmonalis. His beliefs are summed up in the following quotation: "Since it has been proved that cases of consumption do result from inflammation, and since at the same time it has not been scientifically demonstrated that the bacillus tuberculosis ever is its cause in human beings, but only that the bacillus is present in the altered tissues of persons suffering with the disease, it is much more logical to believe that consumption is only the result of ill-ordered growth and disintegration of the natural component parts of the organism."

The origin of consumption is regarded as different from that of cancer because external conditions have a larger influence in producing it, but both diseases are alike in that they arise, so Dr. Meigs maintains, without the introduction into the organism of any foreign substance as their primary cause.

Syphilis, on the other hand, is a disease which in its origin is the opposite of cancer and consumption, arising "only in consequence of the introduction into the body of a specific material poison which there is reason to believe is of a nature heterogeneous from anything in the healthy tissues. It resembles cancer and consumption in that its more remote effect is a tendency to produce morbid fibrous tissue and many lesions that are identical with those common in various forms of chronic disease."

Another class of disease is constituted by the so-called exanthemata. Indeed, according to the author the actively contagious diseases, the source of which he considers beyond our present comprehension, constitute a class by themselves. Having proceeded thus far, Dr. Meigs considers it proven that the origin of disease is from two causes, extrinsic and intrinsic, and that four great divisions typified by cancer, consumption, syphilis, and the ordinary contagious diseases such as measles, may be established. With some one of these four types all known diseases may be classed.

The next nine chapters (IV to XII) are concerned with a careful pathological study of the blood-vessels, the heart, lungs, liver, spleen, stomach, intestines, kidney, and spinal cord, and represent a monument of industry and a wealth of pathological investigation.

The illustrations—one hundred and thirty-seven superb etchings and drawings—are all original and, as we learn from the preface, were made by Mr. Hermann Faber and Mr. Erwin F. Faber from sections of the tissues prepared by Dr. Meigs. Too much praise

cannot be given to this portion of the work, and author and artists are to be heartily congratulated.

The commonest disease of the arteries is thickening of the intima. The unsatisfactory character of the fibrous coat of the arteries is commented upon, and Dr. Meigs is of the opinion that it would be better to describe only two coats in arteries and veins, namely, the intima and the muscularis, and to allow the now named adventitia to be regarded as part of the perivascular connective tissue. The importance of this statement in relation to the doctrines of Gull and Sutton concerning the origin of arterio-capillary fibrosis can readily be understood.

Very instructive are the studies of new blood-vessels in morbid growths. Dr. Meigs's well known researches on the microscopical anatomy of the human heart are further elaborated in Chapter V of the present volume, and the capillaries within the muscular fibers of the heart, which he discovered, are well depicted and described. It is interesting to observe that his researches have led him to believe that compensatory hypertrophy of the heart, as ordinarily understood, has no existence, but that the enlarged heart is always degenerated and weakened.

Space does not permit more than a brief mention of the mass of interesting material which Dr. Meigs has gathered together and microscopically studied, but especial attention is directed to his researches in the pathological anatomy of nutmeg liver, the formation of the so-called new bile-ducts, the manner of the destruction of the kidney in Bright's disease, and particularly of the wide-spread lesions which are characteristic of chronic disease in general.

The concluding chapters of the book are devoted to the diagnosis, prognosis and treatment of chronic disease, and form a section of great value to the clinician.

As may be inferred from this very imperfect *résumé*, the author comes in sharp conflict with certain views which are generally accepted in the pathological world. He has studied earnestly, worked faithfully, and interpreted honestly—that is, according to his light, which reveals to him a picture meaning something very different from that which the same picture illuminated by a different light might mean to another observer. Whether the inferences which Dr. Meigs draws are always sound remains to be proven by future investigations, but no one can dispute for a moment that he has set a pace in

pathological research which must be equaled by those who intend either to follow him or to refute him. If the book accomplishes nothing else—and we believe it will accomplish very much more—it has established on a perfectly firm basis the necessity of accepting disease, especially chronic disease, as the expression of a lesion which, far from being confined to a single organ, is multiple and wide-spread.

After a careful perusal of this book the reviewer feels that it is fair to give expression to two regrets: First, the absence of control sections—that is to say, the absence of sections of arteries and other tissues taken from bodies known to be healthy, or, at least, which gave no evidence of disease before death. Such specimens can always be obtained at coroners' inquests, and they might have aided the interpretation of some of the phenomena presented by the morbid tissues. Second, the sweeping contradiction of certain accepted medical beliefs—for example, the bacillary origin of phthisis and the specific nature of typhoid fever—in the absence of any analysis of the facts on which these beliefs are based. It would seem that justice to the other side demanded this.

Time will show the value of Dr. Meigs's investigations, and he is most heartily to be congratulated upon the publication of this really splendid work, which is commended to the thoughtful consideration of all physicians. Independently of its value as a record of original thought and investigation, the book is a literary treat; the style is polished and the diction at once forceful and graceful.

G. E. de S.

AN EPITOME OF THE HISTORY OF MEDICINE. By Roswell Park, A.M., M.D. Illustrated. Price, \$2.00 net.

Philadelphia: The F. A. Davis Co., 1897.

At the present time, when every physician feels the necessity of constant study of modern works of reference and medical journals, we are too apt to overlook the fact that a thorough knowledge of the history of medicine and of the labors of our predecessors in the medical ranks will often do us almost as much good as an examination of more recent literature. The present volume had its origin in a series of lectures given in the Medical Department of the University of Buffalo by that very able surgeon and author of this volume, Dr. Roswell Park, who in preparing the text for the printer has amplified it so that we have before us a volume of 341 pages, divided into fourteen

chapters. In the first of these we find a discussion of medicine among the various ancient nations, such as the Egyptians or Chinese; then the Arabic period is discussed, and so on we are brought down to such modern times as within the last decade. In the text describing medicine during this century we find pictures of such well known medical men as Virchow and Billroth, Astley Cooper, Brodie, Rush, George B. Wood, Flint, Physick, and Agnew. In Chapter XII is a discussion of the history of anesthesia, illustrated by a picture of Morton making his first public demonstration of etherization at the Massachusetts General Hospital. The thirteenth chapter is devoted to the history of antiseptics, and the fourteenth deals with an epitome of the history of dentistry.

The book concludes with a list of names well known in medical history, and a copious index. Dr. Park is well known as a clear and readable writer, and to those who desire to obtain information and amusement in a spare hour we most cordially recommend this volume.

**DISEASES OF THE STOMACH.** By John C. Hemmeter, M.B., M.D., Ph.D. Copiously Illustrated. Price, \$6.00. Philadelphia: P. Blakiston, Son & Co., 1897.

This very handsome book consists in nearly 800 pages of useful information in regard to Diseases of the Stomach, and, in addition to dealing with the special pathology, diagnosis and treatment of this disease, it has sections on the anatomy and physiology of this viscus, another upon an analysis of the stomach contents, and a third upon Dietetics and the Surgery of the Stomach. The author tells us in his preface that his chief aim has been to furnish the practitioner with a work from which he can readily acquaint himself with all that has been done in this important branch of medicine, to fit himself to make examinations, to take advantage of new methods of diagnosis, and to treat this very difficult class of diseases rationally and successfully. The book naturally opens with chapters upon Anatomy of the Stomach, and these are extended to include also the small intestine. The physiology of digestion is taken up, including not only gastric digestion, but digestion as it is carried on in the small intestine. The influence of the bile is then studied, and details are given for the testing of the motor functions of the stomach. In this part details are also given of the experiments made by the author, and of his original methods of making tests.

In the second part there are papers upon the "Therapy and Materia Medica of Stomach Diseases," in which is a very careful consideration of dietetics and the use of various waters. There are also chapters devoted to the medicinal and surgical treatment of organic gastric diseases.

Part III, which is entitled "The Gastric Clinic," takes up a consideration of the individual diseases of the stomach.

The first point that strikes the reviewer of this volume is the exhaustive manner in which its author has studied the literature of the subject upon which he is writing, and secondly, one is impressed with the fact that its pages also contain many original observations. We think it a mistake, in view of the good original work which has been done by Dr. Hemmeter, that he has included such long quotations from various articles—such, for example, as that from the excellent research of Bensley upon the Histology and Physiology of the Gastric Glands. In connection with these quotations, however, are excellent colored plates from Bensley's research showing the minute anatomy of the stomach.

Nearly every chapter of importance is fortified by an exhaustive bibliography which frequently covers several pages, and extends over English, Continental and American literature. Tables of differential diagnosis are also found in the volume and add considerably to its usefulness.

As this is the first exhaustive work upon Diseases of the Stomach published in this country, the author of which is an American, it should receive a cordial indorsement from the profession. It is true that a manual of Diseases of the Stomach by Dr. Einhorn has already appeared, but it does not attempt to be so exhaustive in its scope. We congratulate Dr. Hemmeter upon having completed a very useful volume, which shows that he is not only a competent and original investigator, but also a skilful writer.

**THE SKIN DISEASES OF CHILDREN.** By George Fox, A.M., M.D. Illustrated by photogravure and chromographic plates and sixty other illustrations. New York: William Wood & Company, 1897.

The preface tells us that this volume consists in the reproduction of a series of illustrated articles upon certain skin diseases which are apt to occur in infancy and childhood, which appeared in the *American Journal of Obstetrics and Diseases of Women and Children* a year ago. The diseases of the skin which are treated number eighteen,

the first chapters being devoted to such frequently met with conditions as Alopecia, Ringworm and Favus, Impetigo and Psoriasis, with other chapters upon such important subjects as Eczema, Nævi, Syphilitic Skin Eruptions, Purpura and Scabies.

The photo-engravings and other full-page illustrations are extraordinarily good, and when we compare these modern methods of illustrating books with the expensive and almost futile methods of a few years ago we can but congratulate the profession and the medical publisher upon the advances which have been made. The text describing the diseases which we have named, and others of less importance, covers ninety-four pages, and is followed by a formulary which covers seventy pages. Under the head of each disease in this formulary are given various prescriptions which have been found useful by the author or others in practise.

A short index completes this very useful volume, which is printed on first-rate paper and in very handsome style.

**A HANDBOOK OF THERAPEUTICS.** By Sydney Ringer, M.D., F.R.S., and Harrington Sainsbury, M.D., F.R.C.P. Thirteenth Edition.  
New York: William Wood & Company, 1897.

The twelfth edition of this book, which appeared almost ten years ago, was a very large one, and met with a cordial reception on the part of the medical profession both in this country and in England. To those who are not familiar with previous editions we may state that this work was never intended as one which should be used as a text-book to take the place of those commonly employed in medical schools. On the contrary it is to therapeutics what Fothergill's Handbook of Treatment is to clinical medicine. It discusses the various drugs, to be sure, but it classifies them according to their clinical arrangement rather than that arrangement which is commonly followed by authors in works upon *Materia Medica* and Therapeutics. Its pages continually reveal the clinical experience and beliefs of its authors, and for this reason it proves most interesting reading to the practitioner and to the student who has time to resort to it, although the information which is given in regard to the general action of most of the remedies is too brief to supply him with the needed fundamental knowledge concerning these drugs. This is the first edition in which Dr. Sainsbury's name has appeared upon the title-page, although the names of Ringer and Sainsbury

joined together have been familiar to pharmacologists for many years. The volume concludes with a new chapter upon serum therapeutics, and by no means the least valuable, a copious and well arranged therapeutic index.

**LIPPINCOTT'S POCKET MEDICAL DICTIONARY.** Edited by Ryland W. Greene, A.B.  
Philadelphia and London: The J. B. Lippincott Company, 1897.

Although this little pocket dictionary covers 421 pages the paper is so thin that the space required in the pocket is scarcely more than that which is ordinarily occupied by the pocketbook. It is, as may be imagined from its title, a condensation of Lippincott's Medical Dictionary, which was published about six months ago, and contains all of the words commonly employed in medicine, with now and again a table, which adds materially to the value of the book. Altogether we are told that 20,000 words are defined and the methods of their pronunciation described in this little manual, which closes with a table of doses in both apothecaries' and the metric system, and which seems to us to meet every need of the student and busy practitioner; while its moderate price is a strong attraction to both of these classes of book buyers.

**A SYSTEM OF PRACTICAL MEDICINE BY AMERICAN AUTHORS.** Edited by Alfred Lee Loomis, M.D., LL.D., and William Gilman Thompson, M.D. Volume II; pp. 941.  
New York and Philadelphia: Lea Brothers & Co., 1897.

The standard established in the first volume of this System is fully sustained, if not excelled, by the second volume at present under consideration. In reviewing the first volume we took occasion to remark that it lacked to a noticeable degree the fault common to most "Systems" in the overlapping of the subjects and the varying teaching of the different authors. This favorable criticism we think applies with equal force to the second volume. In this volume we have presented to us the consideration of Diseases of the Respiratory System, Diseases of the Circulatory System and the Mediastinum, Diseases of the Blood, Diseases of the Kidneys, and Diseases of the Bladder and Prostate Gland. The different subjects under each of these principal divisions are assigned to authors well chosen for their ability and reputation in their particular specialties.

The volume opens with the section on Diseases of the Nose and Naso-pharynx, and

Diseases of the Larynx, by S. Edwin Solly. The consideration of these subjects is ably presented, and Dr. Solly is to be congratulated upon his practical and therefore valuable contribution. As introductory to the section upon diseases of the lungs and pleuræ Elbridge G. Cutler has contributed an article upon the Physical Signs of Pulmonary Disease somewhat elementary in its scope, but, possibly for that very reason, of especial benefit to the student. An article of similar nature by the same writer precedes the consideration of the Diseases of the Circulatory System and Mediastinum and adds to the value of the various articles included in the section.

The section upon Diseases of the Blood by Frederick C. Shattuck and Richard C. Cabot is, as might be anticipated from the reputation of these writers, one of the best in the volume, and is illustrated by colored plates of exceptional merit.

Pneumonia, bronchopneumonia, and chronic fibrous pneumonia are all too briefly considered, in proportion to the importance of the subjects, by Reginald H. Fitz. Indeed, to these three important affections but twenty-eight pages have been devoted. We are entitled to expect more from this writer upon these subjects. It is a matter of regret also that in the section on diseases of the kidneys James Tyson should be assigned only the insignificant space of four pages. The value of this section would have been greatly enhanced had this well recognized authority had a larger share in its creation.

The volume as a whole leaves little to be desired. It is a beautiful example of the publisher's and printer's art, and to the editors we express the hope that in the volumes to follow we may find the same painstaking and care that have done so much to make this and the preceding volume so generally satisfactory.

T. G. A.

PROCEEDINGS OF THE SEVENTH ANNUAL MEETING OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES. Held at Columbus, O., 1897. Edited by James E. Pilcher, M.D. Columbus, O.: Berlin Printing Co., 1897.

This volume of Transactions, comprising nearly 700 pages, is a convincing proof as to the value of concerted action in the study in times of peace of the medical and surgical problems likely to be suddenly presented in case of war. The technical nature of the proceedings is shown by the title of the papers. Thus Gihon contributes an address on The Status of the Military and Naval

Medical Officer; Wise writes on A Plea for the More Efficient Organization of the Medical Department on Our Ships of War; Siegfried considers The Work of the Medical Department on Naval Vessels; Craig discusses The Practical Disinfection of Ships of War; Woods writes on Some Practical Points on Antisepsis in the Navy. Then follow papers on Venereal Disease in the Navy and its Prevention, by Crandall; and the United States Navy Portable Folding General Operating Table, by Siegfried.

The first paper by the army men is upon The Identification of the Soldier, by Assistant Surgeon-General Alden; after this comes Clothing and Accoutrements for the Infantry Soldier; The Infantry National Guard Foot Dress, by Major Halley; The Military Physical Training, by Beyer; What to Avoid in Army Athletics, by John S. Kulp; Physical Training in the National Guard, by Westervelt; The Physical Proportions of the American Soldier, by Kilbourne. These papers are confined almost entirely to military subjects. Among those most to be commended are Griffith's contribution on the Effects of Bullets; Military Medical Problems, by Lieutenant-Colonel A. A. Woodhull; and Regimental Instruction and First Aid, by Surgeon-Captain Fletcher.

GRUNDRISSE DER PATHOLOGISCHEN ANATOMIE. Für Studierende und Aerzte. Von Prof. Dr. R. Langerhans. Zweite vermehrte und verbesserte Auflage. Berlin: S. Karger, 1896.

The first edition of the work under review was a small compendium for the beginner in pathological anatomy and was issued in form convenient for the pocket. The present edition has grown considerably in size and the text alone occupies 540 pages. The change is rather unfortunate, as the number of larger text-books of pathological anatomy is amply sufficient; while there has been need of a small compendium like the first edition. The increase in size has not been sufficient to allow of full discussions of certain subjects and yet has been such as to require some notice at least of all matters pertaining to pathological anatomy. In certain chapters, as for instance in that on Deformities and Monstrosities, the result has been that the articles have become little more than outlines or catalogues of names. It would have been far better to discuss a few of the more important forms of disease *in extenso*. The title of the work indicates that it is devoted to pathological anatomy. This arrangement is not strictly adhered to, as for example in



the sections treating of general etiology and of the pathology of fever; but on the whole morbid anatomy is the conspicuous feature in the book. We should have expected this from the reputation of the author, and might be disposed to admit the usefulness of a work devoted to morbid anatomy alone, though at the present day it seems unwise to separate pathological anatomy from pathology in general. The author's tendency to magnify the importance of the anatomical changes is evident in the article on croupous pneumonia, page 286, where he states: "Diffuse edema of the lungs and not the pneumonic exudate is the actual cause of death in all fatal uncomplicated cases." A clinical pathologist would have considered the importance of toxins, and would scarcely admit the justice of the statement quoted.

As far as the pathological anatomy itself is concerned, the work is highly satisfactory, except that we would have been better pleased with a more modern discussion of tumors. The author acknowledges his indebtedness to Virchow and particularly to this author's work on "*Krankhafte Geschwülste*." The only chapter in this section which he claims as original is that on carcinoma. It is apparent from this statement that the sections on tumors are somewhat out of date, though it must be confessed that much of the newer pathology is less reliable than Virchow's early work. The author has not been sufficiently careful to apportion the different articles equably. The article on sarcoma occupies about four pages; the much less important one on angiomas covers six pages. The same disproportion is observable in the various chapters, and particularly we would call attention to the scanty discussion of the pathology of the nervous system. We miss allusion to much of the newer work in this branch, and cannot regard the presentation even of the older pathology as satisfactory.

An innovation, as far as we are aware, in works on pathology is the discussion of all of the manifestations of tuberculosis and other infectious processes in one section under the heading of infectious diseases. This arrangement has been followed in clinical works for some time, but the pathologists have thus far discussed the infectious processes separately under the different organs.

The illustrations are few in number and not conspicuously valuable. On the whole the work is unsatisfactory.

A. S.

## Correspondence.

### LONDON LETTER.

By RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P. LOND.

It is an ill wind that blows no good, and the epidemics of enteric fever at Maidstone, Lynn, and Clifton, and the smaller outbreak at University College Hospital, have been fruitful in producing a most instructive discussion at the Medico-Chirurgical Society on the prevention of the disease. Dr. Vivian Poore, who opened the discussion, girded at our public water-supplies and sewers as answerable for these epidemics. This was readily admitted by Sir Richard Thorne, who insisted that though the water and sewage systems had transformed the disease from an endemic into an epidemic foe, they had concurrently lowered the mortality from 3.7 to 1.7. This latter fact was confirmed by the statistics of the city of Glasgow, where prior to the introduction of its present water-supply the mortality from enteric fever was 510 per million as against an average of 193 per million for the last ten years. In face of these figures Dr. Poore's suggestions of the multiple modes of peripheral pollution stand as arguments not against the water carriage system, but against the abuses of those who enjoy it. Most of us have guilelessly washed out a length of typhoid intestine direct from the post-mortem room tap without a thought of infection of the water. However, *vere scire est per causas scire*, and with this caution we shall not err again. The conditions of modern life in towns necessitate a system of water carriage and of sewers, and in the case of public water-supplies, if the conscience of the water companies cannot be aroused to constant vigilance, the law must be asked to interfere for the more complete protection of the public. Professor Boyce, of Liverpool, urged that the bacteriological examination of the water should be constant, and made at various points of the supply. He himself had carried this out most effectually in the case of the Liverpool supply, of which he had established a complete and definite bacteriological flora; the accession of any fresh and unfamiliar microbe was investigated at its earliest appearance, and traced to its origin with unremitting energy. Dr. Poore's advocacy of dry closets and daily removal of excreta by a sort of parcels-post scavenge system seemed to us a little un-

palatable; and we can hardly hope to return to that state of prehistoric simplicity, in which each member of the community shall see to the destruction of his own excreta. However capable Nature—with a big “N”—may be of dealing with healthy excreta, we have no sufficient evidence, as Sir Richard Thorne contended, that she has made any provision for the sterilization of specifically contaminated excreta. Disposal of excreta in the tillage of the soil may be practicable in rural districts, but not in urban districts, where the epidemics of typhoid fever almost exclusively occur. Dr. Davies, of Bristol, laid before the Society maps of the incidence of the late epidemic of milk-borne typhoid in Clifton. The proof of the source of pollution was demonstrative, only those houses being attacked at which a certain milk supply was received. Incidentally a point of some significance came to light, in the fact that a school which was supplied from this dairy escaped scot-free, and on inquiry it was found that all the milk was boiled before use. The masterly manner in which this epidemic was traced to its origin, and the abatement on removal of the cause, is valuable testimony to the good work that Preventive Medicine is carrying out in some of our large centers of population. Dr. Davies urged the extension of local control and supervision to the dairies as well as to the water-supplies. Another fact was satisfactorily established by the discussion: that the annual reports of our Local Government Board are a most valuable and instructive body of literature.

At the Clinical Society of London, on November 12, Mr. Tubley brought forward the results of a series of twenty-five cases in which he had treated angular deformity of the spine by immediate reduction. The cases submitted to treatment were those in which no degree or a comparatively small degree of ankylosis had occurred, carefully avoiding all in which firm ankylosis had taken place. Over and above the prevention of subsequent deformities, immediate reduction has this distinct advantage, that it is easier to fix a straight spine than a crooked one. So far from the operation being open to the risk of inducing paralytic sequelæ, Tubley found in several cases that existing paralysis was relieved; nor had he encountered any untoward results in the dissemination of tubercle. The period of after-treatment with rest and fixation of the spine should not be less than two or three years; less prolonged care was only liable to lead to

relapses. Seeing that the dangers of the operation are comparatively slight, and certainly not exceeding the mortality of the untreated cases, if we can be assured of the beneficial results of the treatment, the chief difficulty lies in the selection of the cases. Tubley summarizes the suitable cases as: (1) young subjects in whom the curvature is of short duration, is progressive, and has undergone no degree of firm ankylosis; (2) those in which local activity of the disease is manifest; (3) those free from visceral complications; (4) cases in which paraplegia existed and was not kept in hand by conservative methods of treatment. On the other hand, the chief contraindications to reduction seemed to be firm ankylosis, visceral tuberculosis, existing abscess, and curvatures of the cervical spine, where special dangers would be encountered. Cabot, however, was inclined to less caution in the selection of his cases. He was disposed to disregard the extent of the curvature, because though an extensive curvature represented the loss of a number of vertebral bodies, the resultant gap was not necessarily filled in by replacement of the vertebral bodies by new bone, but healing was then chiefly due to bony ankylosis of the posterior parts of the vertebral column. Equally, a considerable degree of ankylosis limited to the posterior part of the vertebræ could be removed by a preliminary osteotomy, so that each case could subsequently be submitted to reduction without risk of inducing paralysis. We should like more evidence of the resisting capacity of these alleged posterior bony adhesions. What weight can they sustain in the absence of the vertebral bodies? A firm and fixed curvature, whatever its degree, will be better than a straightened but infirm vertebral column.

The method of forcible extension of the spine is a revival of very ancient surgery; at any rate, it may be traced back as far as 1674 A.D., and in later times the abuses of the procedure seem to have inspired one of Abernethy's clinical lectures.

At the Harveian Society on November 4, Noble Smith stated that he considered forcible reduction of curvature due to caries dangerous and not permissible; but he himself had used the method with the greatest benefit in cases of simple lateral curvature of the spine. Even in cases where some deformity of the bones was indicated by the existence of axial rotation of the vertebræ, it was possible to restore a perfectly straight position by extension, such as could not be

effected by exercises alone. Exercises were so far valuable that they produced temporary correction of the curvature, but the constant use of an extension apparatus served to maintain the improved posture in the intervals of exercise; in this manner it is not unlikely that even deformity of bones may be rectified by the relief of pressure. It is difficult to see in what particular Noble Smith's recommendations are an advance upon the practise prevalent in every hospital, where patients are suspended from the neck and axillæ so as to correct the deformity, while a permanent extension apparatus is applied.

Dr. Herman's remarks on pruritus vulvæ at the Hunterian Society deserve notice. He recognizes five chief classes of pruritus: (1) Adventitious irritants, such as pediculi, dirt, worms, and pessaries. The treatment of such cases must obviously consist in scrupulous cleanliness together with removal of the cause; for pediculi in this region he uses the white precipitate ointment as elsewhere. We confess that we have never been able to satisfy ourselves of the part played by intestinal worms in inducing vulval and vaginal disorders; at the least it is a very rare cause. (2) Skin diseases—especially eczema, herpes, furuncles, urticaria, follicular and diabetic dermatitis. Eczema should be attacked locally with warm hip-baths, to which Wright's liquor carbonic detergens may be added; after the bath the surfaces should be powdered with boric acid. In diabetic pruritus he despairs of local treatment. In this we cannot agree with him, be it dermatitis or what not. No doubt general diabetic treatment will do much, as we have always assumed, by lowering the saccharine constituent of the urine; but equally we have found great curative value in the use of some simple protective ointment such as bismuth, bathing the parts freely with any simple sedative lotion before applying the ointment. Follicular pruritus he treats by squeezing out the contents of the follicles, and applying a germicidal lotion, such as 1:2000 corrosive sublimate. (3) Irritating discharges, such as those of gonorrhea, cancer, and senile endometritis. For these cases he suggests sedative and antiseptic washes to the vagina, followed by dusting sedative powders, such as dermatol and boric acid, on the vulva; stubborn cases will often yield to a strong carboic solution, such as 1:7. (4) Venous congestion due to heart, lung, or liver disease. Locally these require much the same treatment as the preceding class, along with measures of relief

of the venous congestion. (5) He recognizes a purely nervous form of pruritus occurring in old women, and due to degenerative changes in the nervous system. It is of course difficult to substantiate such a causation, but we quite agree with Dr. Herman as to the futility of treatment. Temporary relief is often derived from alkaline baths, but even so after a while the irritation returns in spite of maintenance of the treatment.

At the Medical Society of London Dr. de Haviland Hall showed a man whose weight had been reduced from twenty-eight stone to twenty-two stone by thyroid treatment, along with a nitrogenous diet and avoidance of alcohol. Dr. Hall found that more than three five-grain tabloids of thyroid extract daily were ill tolerated, but we have ourselves recently given twice this amount to a young woman for obesity with no ill results. In this case, in spite of the fact that the patient was bedridden with a diseased hip, and could take no exercise at all, the weight was reduced by sixteen pounds in the course of a month. Dr. Hall noticed diuresis in his case, while in ours marked diaphoresis occurred, and the urine was somewhat diminished in amount. There can be little doubt that in some cases of obesity—in no way associated with the lipomatosis of myxedema—thyroid treatment may be markedly beneficial.

At the same meeting Mansell Moullin showed two cases in which he had used Coley's fluid successfully in the case of irremovable tumors, which beyond all reasonable doubt were sarcomatous in nature. The tumors were certainly not gummatous, and there was no evidence of their being simple inflammatory tumors. Such cases as these, taken along with the well authenticated cases of Coley himself, show that this treatment at least deserves a trial in cases of inoperable sarcoma. Mansell Moullin would not commit himself to an opinion as to the mode of action of the fluid, whether it exerted a specific remedial action, or whether it served merely to provoke inflammation. Dr. Colman was able to throw some light on this question from the post-mortem examination of two cases, which had died of intercurrent disease after treatment by injection. In one there was a large softened core in the interior of the tumor, while in the other there were cicatrices that probably marked the site of past inflammation. Incidentally also these autopsies showed that the treatment was applicable to round-celled and spindle-celled sarcomata.

## BERLIN LETTER.

BY JAMES J. WALSH, PH.D., M.D.

Professor Baginsky remarked the other day, at the Kaiser and Kaiserin Friedrich Hospital for Children, that the mortality of the cases treated in the diphtheria pavilion of the hospital for 1897 was about eight per cent. These are marvelous figures when we consider that the general statistics of diphtheria mortality in Berlin five years ago gave a death-rate of over forty per cent. Instead of the dread disease that used to carry off so many children, and that the physician was practically powerless against, it has become the proudest trophy of victorious therapeutics, no more to be dreaded now than the simplest of the so-called children's diseases.

Two things, however, remain where improvements in treatment may be counted on to bring further reduction in mortality: one is laryngeal diphtheria, the other mixed infection. It is his special care and methods in the treatment of the first which, to my mind, make Professor Baginsky's statistics so favorable. The prodromal symptoms of a laryngeal infection are carefully watched, and specially large and active doses of serum given at once and repeated several times if necessary. Intubation is done as soon as any serious dyspneic symptoms develop, for the lessened aeration of the blood is considered to decrease resistant vitality and inhibit the reaction of antitoxin against toxin by its effect on vital chemical processes.

Where intubation fails to give relief, tracheotomy is resorted to—always before the threatening symptoms have become so severe that serious results are already to be feared from exhaustion due to overstrained lungs and respiratory muscles. The after-treatment in both intubation and tracheotomy constitutes the feature of the therapeutics in the hospital. The children are allowed to breathe only an atmosphere that is thoroughly saturated with warm moisture. A special apparatus of Professor Baginsky's own invention is attached directly to the steam-heating pipes that warm the pavilion. This apparatus is constructed on the principle of a large, ordinary atomizer. The current of steam passes over the narrowed orifice of a pipe plunged in water, and so is partially condensed by the particles of water that its suction action draws up to mingle with it as it is dispersed around the room.

Instead of a little steam issuing from a

kettle there is a large jet of steam always clouding the room with moisture. The children are protected from dampness by rubber coverlets. In cases of severe dyspnea or immediately after operations the child is completely covered with rubber cloths except those parts that are necessary for breathing purposes, and a jet of steam allowed to blow over it for some time. Besides the fact that the breathing of dry, irritating air is thoroughly avoided, there seems to be a special therapeutic effect in this steam-bath. The membrane on the larynx seems to drop off sooner and easier and the absorption of toxins from the diseased spots to be stopped more readily.

As to the danger from mixed infection in diphtheria, very little but the ordinary general therapeutic measures can be used with fair hope of success. It was thought that antistreptococcic serum would be of use for this. It is undoubtedly a streptococcus that causes the most dangerous mixed infection in diphtheria, but nothing has become clearer recently in bacteriology than that under the form streptococcus one has to do with a large variety of very differently virulent and variously pathogenic micro-organisms.

A favorite experiment in bacteriological laboratories for the beginner is the repetition of Professor Paltauf's (of Vienna) striking demonstration as to the curative power of streptococcic serum. A rabbit is inoculated in each ear with a special variety of streptococcus culture; and after a time receives injections of streptococcic serum, obtained by immunizing another animal against one of the forms of streptococci employed. In both ears an erysipelatosus process begins. In one it heals as soon as the injections of the corresponding antitoxin are given; but in the other the inflammatory process goes on unaffected. The number of forms of streptococci are said to be legion.

It is true that Petruschky's work seems to have demonstrated within the year that the streptococcus erysipelatosus and the streptococcus pyogenes are the same beyond a doubt; but a review of his experiments would seem to show that all the ordinary streptococci found as parasites in man will under certain circumstances produce erysipelas; for the varying virulence of different species not to be distinguished from one another by any known bacteriological means is extremely great. Not only may what is virulent for one species fail to affect another, but the same thing holds for different individuals of

the same species, and even for different men. No wonder that there is considerable discouragement about using streptococcic serum; while it is still tried, it is usually only in extreme cases, where anything with a gleam of hope in it is eagerly reached for.

One striking thing that has come out in therapeutics over here as the result of the inability to grapple with mixed infection is the internal administration of tincture of myrrh, which many of your readers will remember was first suggested in Philadelphia some ten years ago. Dr. Stroll, of Munich, reports eighty cases with but one death treated by this method. He prescribes:

R Tincture myrrh, 4 parts;  
Glycerin, 8 parts;  
Distilled water, ad 200 parts.

He gives it every hour or every half hour in severe diphtheria cases, among which he includes all laryngeal diphtheria—a coffee-spoonful (five grammes) under two years; one to two teaspoonfuls (four to eight grammes) up to fifteen years; two to four teaspoonfuls (eight to fifteen grammes) to an adult. When the symptoms moderate the remedy is given only every two hours, and is continued for forty-eight hours (every three hours) after all membrane has disappeared. Dr. Stroll collects nearly 300 cases from the literature of the last three years, in which the remedy has been used with strikingly good success.

The principle of its therapeutic effect is founded on the phagocytic theory. Years ago Binz observed that the administration of myrrh caused a leucocytosis in which the white blood-cells were increased to four times their original number. The immediate cause of this is an excitation of the blood-making organs to unusual activity; the effect is the throwing into the circulation of an immense number of phagocytic cells ready to dispose of foreign bodies that they may encounter.

The surprise of the year in physiology and therapeutics came in the shape of Professor Munk's article in *Virchow's Archives* on the thyroid question. He absolutely denies that the removal of the thyroid in animals either necessarily causes death or inevitably leads to myxedema—the strumiprивous cachexia, so-called. He has never seen myxedema develop in animals and doubts if any one else has. He especially criticizes the original experiments of Horsley, on which much of the modern physiology of the animal thyroid is founded.

Professor Munk denies, too, that the feeding of thyroid or the grafting of the removed

gland into another part of the body ever lessens the dangers of thyroidectomy, which always remains a very serious operation. There is no question either, to his mind, of the compensatory hypertrophy of any other organ or set of organs to replace the function of the thyroid in animals which survive thyroidectomy. Professor Munk has a number of animals alive months after the operation, and has been especially successful in the case of apes, who have survived and are in good health nearly a year after careful, complete, but thoroughly aseptic removal of the supposedly absolutely essential thyroid.

The article is not altogether a surprise in medical circles in Berlin. Some months ago, at the Berlin Physiological Society, there was a very lively discussion of the matter, in which Munk put forth the views he now publishes.

Over a year ago Drs. Blumreich and Jacoby, working in Munk's laboratory, showed the utter falsity of Gley's conclusions, that the parathyroid glands hypertrophy, or rather evolute, from embryonal into developed thyroids, and take up the function of that gland when it is removed and they are left in the tissues. Some of their animals had lived absolutely without thyroids and without serious inconvenience for long periods after the operation. All of the work has been carefully done, and no time or inconvenience has been spared to do enough experiments to put conclusions beyond the realm of coincidence, so that the whole subject of the physiology of the thyroid, in animals at least, must be considered as once more debatable ground, though it was thought to be practically settled for a number of years past.

A number of medical men whose opinions were asked on the subject were very reserved, and said that time and further observation alone can tell. Professor Munk is after all an acknowledged authority on physiology and a most careful observer. The article would not have appeared in the eminently conservative *Virchow's Archives*, whose editor prides himself on his personal supervision of the material accepted for publication, save that it was considered to represent some of the best scientific thought of the day. Professor Virchow himself is said to have personally made the autopsy of some of the apes that had survived thyroidectomy for months, and to have found no vestige of thyroid tissue remaining to account for the survival.

The recent Leprosy Conference here

seemed to come to the conclusion that the most effective therapeusis of the disease was the administration of mercury in somewhat the same way as in syphilis. Good effects almost invariably follow its use, but discouraging relapses come, and these, as in syphilitic recurrences, are to be treated by a repetition of the course of mercury. As somebody remarked not long ago with regard to actinomycosis, the only cured cases in the literature seem to be those in which a mistaken diagnosis of syphilis was made and mercury administered. Bacteriologists have lately been describing certain forms of the bacillus of tuberculosis which developed in the tissues with the rosette form, each of the rays having the clubbed end which has hitherto been considered so characteristic of actinomycosis. The same appearance of the lepra bacillus was shown in a number of beautiful specimens during the Leprosy Conference. There would seem to be a closer relationship of form in the producers of the infectious granulomata than has hitherto been imagined, and a more intimate association in their inhibition by a certain class of drugs than has been considered to exist. Whether there is in this a therapeutic law of wider application is occupying some attention from therapists over here now. Where so much must depend on empiricism, a law even of limited application would be warmly welcomed.

#### THE TREATMENT OF RHINITIS.

To the Editor of the THERAPEUTIC GAZETTE.

DEAR SIR: I append a formula for the general practitioner in the treatment of acute or chronic rhinitis and kindred inflammations.

Of course nasal obstructions, from whatever cause, and specific affections should be differentiated from catarrhal conditions, and operative measures or constitutional treatment instituted before local medication is to be considered.

I have become convinced that aqueous medicaments or dry powders applied to the mucous membrane of the upper air passages are neither curative, nor even palliative of morbid conditions. Consequently I have been trying medicated oleaginous preparations.

Wishing to get the effect of creosote I tried in vain to obtain a satisfactory unctuous solvent for it. But when I tried guaiacol the end was attained.

The formula which I have evolved is pleasant to use and is followed by the most

gratifying results in both atrophic and hypertrophic rhinitis. The treatment must be protracted, as the antrum, ethmoid cells and frontal sinus are usually involved and the healing process has to extend by continuity.

The medicated oil remains in contact with the tissues for some time; much of it is absorbed. It is antiseptic; it protects, depletes, soothes, stimulates, and heals. It should be applied every three hours or as often as the patient's occupation and habits will permit.

The "Whitehall & Tatum Vaseline Atomizer" is the most satisfactory instrument with which I am familiar for making the application:

R Guaiacol, 1 drachm;  
Menthol, 40 grains;  
Cocaine hydrochlorate,  
Camphor, of each 20 grains;  
Glymol, 4 ounces.

M. Sig.: Use in atomizer, spraying nose and throat every three hours, or more often if possible.

THEODORA T. PURKITT, M.D.

WILLOWS, GLENN CO., CALIF.

#### A SUGGESTION TO BE USED IN ABDOMINAL INCISION.

To the Editor of the THERAPEUTIC GAZETTE:

SIR: In performing laparotomy I have noticed that after the abdominal incision has been made it frequently occurs that from the constant introduction and manipulation of the fingers through the incision the peritoneum becomes separated to a greater or less extent from the muscular tissue; and appreciating the fact that several complications can arise from this condition of affairs, the idea suggested itself to me to introduce a stout ligature through the center on either side of the incision about half an inch from the margin of the wound, this ligature being first tied snugly, and a loop of from four to six inches allowed to remain beyond the first knot. We accomplish by this procedure two results: first, we prevent the separation of the peritoneum from the tissues overlying; and second, we have two retractors which take up no room and cause less traumatism than the ordinary metal retractors. When the operation is completed the ligatures are clipped and removed, and the wound brought together according to the method adopted by the surgeon.

Yours truly,  
HENRY J. SCHERCK, M.D.

ST. LOUIS, MO.

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## Original Communications.

**FOUR CASES OF STONE IN THE BLADDER, WITH HYPERTROPHY OF THE PROSTATE GLAND, WHERE POSITIVE DIAGNOSIS WAS IMPRACTICABLE UNTIL DOUBLE CASTRATION RESULTING IN ATROPHY OF THE PROSTATE RENDERED THE PASSAGE OF A STONE-SEARCHER POSSIBLE.**

BY ORVILLE HORWITZ, B.S., M.D.,

Clinical Professor of Genito-Urinary Diseases, Jefferson Medical College; Surgeon to the Philadelphia Hospital and State Hospital for the Insane; Consulting Surgeon to the Hayes Mechanics' Home.

The result of a trial for malpractice of a prominent physician of Baltimore induces the writer to lay before the profession the his-

stories of four cases of double castration, undertaken with a view to producing atrophy of the prostate gland, in order to make an examination of the bladder practicable, and to determine the existence, or otherwise, of urinary calculi.

These cases may possibly be of interest to the profession, as they in a measure demonstrate that in some instances positive diagnosis of the existence of stone in the bladder is impossible where hypertrophy of the prostate exists, especially if the middle lobe be so much enlarged as to render the passage of the stone-searcher impracticable, unless a suprapubic cystotomy or a double castration be resorted to; the latter operation, it is now conceded, causing atrophy of the hypertrophied gland.

When the enlarged gland has sufficiently dwindled, the stone, if it exist, can be readily located and extracted by suprapubic cystotomy, or crushed by lithotripsy.

A brief history of the cases is here presented:

CASE I.—S. A., seventy years old, broker, had been suffering from symptoms of cystic stone, which gradually intensified, for the past five years. When first seen he stated that he voided his urine many times during the day and night. He experienced great pain at the meatus urinarius at the termination of each act of micturition. The urine often contained blood, which at times was passed after urination. The urine was cloudy, offensive, with an alkaline reaction, and contained a small quantity of albumen, with pus, blood-corpuscles, and crystals of phosphates and oxalates. The percentage of urea was low. Examination per rectum revealed an enormously hypertrophied prostate. Many attempts had been made to pass a stone-searcher, but without success. The only instrument that could be introduced into the bladder was a small-sized rat-tail rubber catheter, which was passed with difficulty. When the catheter was introduced the bladder was found to contain five ounces of residual urine. The capacity of the viscus was six and one-half ounces. The patient's sexual functions had long been lost. He was told that he was probably suffering from stone in the bladder, but that it was impossible to make a positive diagnosis until the enlarged prostate, which caused the obstruction, had been reduced in size. A double castration was advised. His consent having been given, the operation was performed. Two weeks later a stone-searcher was readily passed, and the existence of calculi easily detected; these were removed by the operation of suprapubic cystotomy, and the patient made a rapid recovery.

CASE II.—L. T., sixty-five years old; mariner. History precisely similar to Case I. The obstruction produced by the enlargement of the prostate permitted the passage of a very small Mercier catheter only. Double castration was performed. Fourteen days after the operation a stone-searcher was readily introduced, and a large-sized calculus was found, which was removed by suprapubic cystotomy. The patient made a rapid and uneventful recovery.

CASE III.—G. C. B., sixty-two years old; manufacturer; affected with hypertrophied prostate. In addition to the usual symptoms

he complained of great pain in the glans penis, especially after urination. He frequently passed blood before, during and after the act of micturition. Pain and hemorrhage were increased by riding over rough roads. Had had two attacks of retention of urine. The middle lobe of the prostate was found to be greatly enlarged. A stone-searcher was introduced with difficulty. Owing to the enlargement of the middle lobe an exploration of the bladder was not possible. The sexual powers of the individual were completely lost, and he willingly gave his consent to the performance of a double castration preliminary to cystotomy. Ten days after the operation the stone-searcher was readily passed, and two good-sized calculi were found in the pocket posterior to the prostate, and were removed by a suprapubic operation. The patient left the hospital one month after entering the institution entirely relieved.

CASE IV.—H. Q. M., seventy-one years old, retired merchant, stated that he had had "trouble with his bladder" for the seven years preceding his application for treatment. He complained of pain in the head of the penis, neck of the bladder, and over the pubes, after passing water. Had frequent attacks of hematuria, and one attack of ischuria. The flow of urine from the bladder was very difficult to start. The urine was cloudy, offensive, alkaline, and contained albumen, pus, leucocytes, and crystals of phosphates and oxalates. The prostate was very much enlarged. The only instrument that could be introduced into the bladder was a very small hard-rubber English catheter. Double castration was performed, and fifteen days after the prostate had sufficiently shriveled to allow of the introduction of a stone-searcher, when a calculus was readily located. It was small and was easily crushed by the use of Forbes' lithotrite. Patient made a slow but complete recovery.

In each of these cases there was marked obstruction of the urethra, due to senile hypertrophy of the prostate, complicated with chronic cystitis, with symptoms of prostatitis and stone in the bladder. In no case was it possible to make a positive diagnosis of stone; in but one could the stone-searcher be introduced, and then, owing to the great enlargement of the middle lobe, it was impossible to utilize the instrument for the purpose of exploration.

The existence of a calculus was suspected in each case, and the patients were distinctly



informed that double castration was but a preliminary operation.

Two of the individuals were sent to me by their respective family physicians, with a diagnosis of stone in the bladder; in neither had hypertrophy of the prostate been suspected, no physical examination having been made. The two others were referred to me as cases of "obstructive" hypertrophy of the prostate, the complication with vesical calculus not having been suspected.

A study of the history of the cases here submitted would seem to warrant the following conclusions:

That in cases of hypertrophy of the prostate, where enlargement is so great that a stone-searcher cannot be passed, or if it can be inserted, a thorough exploration of the bladder cannot be made, a positive diagnosis of calculus is not feasible.

That where the hypertrophy is so great that a positive diagnosis of stone in the bladder cannot be made, a double castration is an entirely justifiable operation as a preliminary measure to insure shrinkage of the hypertrophied gland, provided the patient has already lost his virile power, and is otherwise a proper subject for the operation.

That a surgeon is not to be held blameworthy if he is unable to say positively whether a vesical calculus does or does not exist, if the entrance to the bladder is obstructed by the condition of the prostate to such an extent that a stone-searcher cannot be introduced, or if inserted, cannot be properly utilized to explore the organ, or if the existence of a calculus cannot be detected by resorting to the *x*-ray. (In this connection it may be remarked that two of the four cases whose history has been recounted in this paper came under the writer's care after the great discovery of Roentgen had been announced to the world, and that this method was used as a means of diagnosis, but failed in each instance.)

That in all cases of hypertrophy of the prostate, where exploration of the bladder by the stone-searcher is either impossible or nugatory, and where double castration is recommended, the patient should be advised of the possibility of the existence of a vesical calculus that can only be detected with certainty after the gland has become sufficiently atrophied to allow of the passage of the sound. Should a calculus be present it can be readily removed by a subsequent operation.

### PUERPERAL MASTITIS.\*

By J. A. MURRAY, M.D.,

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I have selected this subject because it is one of the most important diseases we are called upon to treat, and one which is, to a very large extent, preventable if early precautions are taken. A lack of success in the treatment of this disease may greatly mar one's reputation. This is especially true if the case be a primipara, and singularly enough it is in this class of cases that inflammation of the breast mostly occurs. There are few things that bring more condemnation upon the young practitioner than to have the young mother's confinement followed by mastitis with resultant mammary abscess, and perhaps destruction of the breast.

One eminent authority claims that the disease occurs in one-fourth of all child-bearing women during the period of reproduction; and the fact that there is so very little written about this condition in most of our textbooks has led me to bring the subject before the Society with the hope that it may aid some of us in its prevention and treatment.

In this article I will only speak of its cause, symptoms, and treatment.

It was long believed and taught that puerperal mastitis was due to an engorgement of the gland with milk; but though there is still some uncertainty about what effect "milk stasis" has on the production of mastitis, the generally accepted theory of pathologists and bacteriologists is that the condition is of bacterial origin.

Although engorgement of the breast with milk no doubt acts as a predisposing cause, especially in that form where the parenchyma of the gland is involved, it seems to have been proved that inflammation followed by pus formation cannot occur without the introduction of the pyogenic cocci—the microbes of suppuration. While admitting that "milk stasis" acts as a predisposing cause, there can be no doubt that the important factor in its production is infection from without.

If antisepsis has proved nothing else, it has convinced the obstetricians of the world that aseptic and antiseptic treatment directed to the breast has greatly reduced the frequency of this disease. The most frequent point of infection is through an abraded or fissured

\* Read before the Clearfield County, Pa., Medical Society.

nipple, and the source of the infecting micro-organism is the child's mouth, patient's and nurse's fingers, or unclean appliances used about the breast, such as unclean linen, dirty nipple shields and breast pumps. It has not yet been proved whether the germs enter the breast through the lymph-channels or the milk ducts. Some authorities contend that the microbes of infection enter both ways, and to decide which is correct is no easy matter. So far as the treatment is concerned it makes but little difference, except when massage is used, and in this respect it is very important to make the differential diagnosis. This point will be made clear when speaking of the treatment.

In connection with the etiology and pathology of mastitis it must not be forgotten that some authorities put forth the claim that the disease is also due to micro-organisms in the mother's blood, which have been absorbed from some abrasion, tear or injury of the parturient canal or genitalia; to decomposing clots or placental tissue which have been retained in the uterus. It has also been known to follow phlebitic infection and inflammation. I have seen one case where a mammary abscess followed a severe phlebitis which practically destroyed the whole breast.

There are three principal varieties of the disease, viz., the glandular or parenchymatous, subcutaneous, and subglandular—the latter belonging to the connective tissue variety.

I will only dwell briefly upon the symptoms, except when I differentiate between the different forms of the disease, which is quite important with regard to treatment. The different varieties of mastitis are all accompanied by the signs of inflammation. At first there may be only uneasiness or soreness of a part of the breast. This will shortly be followed by chilliness or a distinct rigor; then elevation of temperature, often reaching as high as  $103^{\circ}$  to  $105^{\circ}$  F.; increased pulse-rate, pain, tenderness of one or all of the lobes, which soon become indurated, followed by a reddened skin over the diseased area. Since the glandular or parenchymatous variety is by far the most frequent and the one most amenable to treatment, I will describe the symptoms more fully and mention one distinctive differential point. This is important, since it is the subcutaneous and subglandular variety which mostly results in pus formation and mammary abscess. In the glandular variety, by careful examination you will be able to distinguish one or more distinct, hard, circumscribed, tender nodules, due to milk stasis, in

this portion of the breast. The skin overlying this may be only faintly reddened. The pain produced by manipulation is not so severe as in the other varieties. The temperature goes very high, often reaching  $105^{\circ}$  F. If the disease is not aborted at this stage the milk undergoes chemical changes; sugar is converted into lactic and butyric acids; the casein is coagulated, and in it great quantities of bacteria are found. The micro-organisms now infiltrate the connective tissue surrounding the acini of the glands, and the disease rapidly passes into the interstitial variety, complicating it with the glandular.

It will, however, sometimes occur that the connective tissue between the acini of the gland will become affected almost simultaneously with the acini themselves; in such instances it will be impossible to make a differential diagnosis. In these cases the treatment should be directed to the parenchymatous variety, which will be described later. In the connective tissue variety, which is less frequent, the interstitial connective tissue around the acini undergoes an inflammatory condition and the patient will complain of a very painful spot, which is not so well outlined as in the glandular form. The characteristic nodule of the glandular form is not so apparent. The pain is generally much more severe if manipulation or pressure is made upon the breast. There is a more gradual elevation of temperature in this form. By a careful examination it will be found that the nipple or areola is eroded, fissured, or macerated, or that they have previously been sore. The skin will early become reddened, shiny, and edematous, and this will generally correspond with that portion of the breast where the nipple or areola is fissured or eroded. This form generally goes on to an early pus formation and mammary abscess, regardless of early and persistent treatment. This is more especially the case if the nipple is much inflamed and does not quickly yield to treatment.

The first consideration is prophylactic treatment, which should begin during the last months of pregnancy, especially in primiparæ, and consists in putting the nipple in the most favorable condition for nursing. The pressure of tight clothing over the breast is contraindicated in the latter months of pregnancy, because it causes retraction of the nipples. For one month before labor the nipple and breast should be treated by mild antiseptic washes daily to remove all seba-

ceous materials. Astringents and alcoholic applications should not be used. They harden the cuticle and thus predispose to fissures. The best method after daily antiseptic cleansing is the application of warm cacao butter; this makes the nipple supple and flexible, and in most instances will give good results. The prospective mother should also be taught to draw out small and retracted nipples and treat them as above stated. She should observe strict rules of cleanliness during the whole period of lactation.

The milk should not be allowed to accumulate in the breasts. After the child has nursed the breasts should be cleansed with boric acid or bichloride solutions, followed by the application of cacao butter, which must be washed off with sterilized water before the child nurses again. To prevent milk stasis or engorgement the child must be taught to nurse early. If it cannot use all the milk, it is best to draw the extra quantity by massage, being careful to always stroke the breast in the direction of the milk ducts; this if properly performed is much better than any breast pump, which is often unsatisfactory and injurious. If there is hypersecretion of milk the quantity can be lessened more surely by compression than by any medicinal remedies yet discovered. This is best accomplished by placing a heavy layer of cotton over the breast and applying a binder. It is always advisable to cut a hole in the cotton and thus save compression of the nipple. If this does not sufficiently lessen the hypersecretion, it is wise to combine with it belladonna ointment or plaster over the breast, and saline purgation for its derivative action. The child should be taught from the very first to nurse at regular intervals of two or three hours. It should not be allowed to nurse more than fifteen minutes at a time, longer periods causing maceration of the nipple and destruction of the epithelium, which will afford a pathway for the ingress of bacteria.

Any macerations, erosions or fissures of the nipple or areola must be treated antiseptically at once, after which some bland ointment must be applied. Probably the very best treatment for fissured nipples is to paint them with a five-per-cent. solution of cocaine and then touch the whole fissured tract with a fine point of nitrate of silver stick. If the nipple is too painful to permit nursing, a nipple shield may be used with good results. The pain from nursing is often relieved by painting

with a weak solution of cocaine and then coating it over with ethereal collodion or compound tincture of benzoin. Notwithstanding all the foregoing measures and precautions, the gland will sometimes go on to inflammation. It will then be necessary to put the breast to rest and take measures to relieve engorgement and lessen the tension and blood-supply. If the nipple is sore or abraded, it is always best to remove the child from the breast and thus favor healing of the nipple, lessen the pain and suffering, and decrease the secretive activity of the gland. This is also a wise precaution for the health of the infant, which may become ill from nursing milk charged with inflammatory products, and perhaps pus.

If we are now able to decide positively that the inflammation is of the glandular variety, then it is our duty to empty the gland by massage, combined with the breast pump, remembering the latter instrument only removes the milk from the lactiferous ducts in close proximity to the nipple; hence the importance of massage to facilitate the passage of milk from the acini of the gland. Having emptied the breast, we must now take measures to prevent large reaccumulations, which is best accomplished by compression, in the manner described for hypersecretion. At the same time we should use large derivative doses of saline cathartics.

After the tension of the breast has been relieved by the breast pump, massage, and compression, we should place an ice-bag on top of the binder over the most sensitive portion of the breast. This will tend to lessen the overdistended blood-vessels, relieve pain, and check the activity, multiplication and growth of the various microorganisms. The ice-bag should be used continuously till the pain is relieved and temperature falls. Should the ice-bag prove ungrateful to the patient, it will be better to place cotton compresses saturated with lead-water and laudanum upon the breast and cover this with a rubber dam, and over this apply the binder. Of course it must be remembered all the foregoing remedies are useless if the case when first seen has gone into beginning pus formation, as then we should direct our attention to an early evacuation of the pus according to the directions that will be given later.

When the inflammation is of the connective tissue variety, subcutaneous or subglandular, the treatment will differ from that just described. Compression should not be used.

The breast should be supported by a Murphy binder. Massage, so useful in the parenchymatous form, should not be attempted, as it is sure to increase the inflammation. We must now resort to lead-water and laudanum, saline cathartics, and extract of belladonna; glycerin spread over the breast is often very useful, but we must watch its physiological action lest too much be absorbed. It is in this class of cases that we will mostly discover abrasions, macerations and fissures of the nipples, which must be treated energetically and quickly cured if we are to avert suppuration. But in spite of all we can do this variety of inflammation will sometimes result in suppuration. We will now have a mammary abscess. To discuss the different forms of this condition and their treatment would occupy far more time than is allotted me for the reading of this article. So in a general way I will only state that all forms of mammary abscess, as well as any other pus cavity, should be evacuated the moment we are sure there is suppuration.

In opening these abscesses the incision should always radiate from the nipple in the direction of the lacteal ducts. If the abscess is superficial we may freeze the part with ethyl chloride and open under antiseptic precautions. If it is deep or post-mammary, the patient should be anesthetized, and after the skin and fascia is laid open we should go down with a grooved director. When we have located the cavity it is better to open it up with a dressing forceps sufficiently to admit a finger. If more than one cavity exists, they are all to be opened in the foregoing manner. By this method there is no danger of opening up the milk ducts, which often results in milk fistulæ which are difficult to heal. After the pus is thoroughly evacuated the cavity must be well irrigated with a warm two-percent. creolin solution or a weak solution of bichloride of mercury. The cavities and openings should then be packed with sterilized or medicated gauze, followed by antiseptic dressing and a firm bandage. After twenty-four hours this should be removed, the cavity again irrigated with a solution of hydrogen peroxide, strips of gauze placed in the drainage tracts, and a firm bandage applied. This is left for from twenty-four to thirty-six hours, when it is removed and irrigated again, an antiseptic dressing applied, and over this compression.

The foregoing treatment will generally result in cure in a very short time unless it be a post-mammary abscess, when more radical measures will be necessary, such as curetting

the sinuses with a sharp curette or partially dissecting the gland from the walls of the chest, curetting the suppurating surfaces, and then suturing the breast in position again; the freshened surfaces, where the sinuses or cavities existed, being sutured or effaced with catgut ligatures. During the treatment the patient should have nourishing diet and ferruginous and bitter tonics. Stimulants will be found valuable in some cases.

In the preparation of this paper I have drawn to a considerable extent, on treatment, from an able article by Dr. Richard Norris, of Philadelphia, for which I return thanks.

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#### *DELAYED RESOLUTION IN PNEUMONIA, AND ITS TREATMENT.\**

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BY ALFRED STENGEL, M.D.,

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The pathology of croupous pneumonia is so well understood that I need not allude extensively to it. There is, however, one important point to which reference should be made, and that is the time relation of the crisis or decline of fever and other marked symptoms to the actual resolution of the disease in the lungs. To me the phenomena of the crisis are among the most strange symptoms of the disease. It seems well-nigh inexplicable that a patient with a consolidated lung should pass in the course of an hour or a few hours from the condition of extreme dyspnea, high fever and general nervous excitation, to one of normal temperature and general tranquillity, notwithstanding the fact that the lesion in the lung has not apparently changed in the slightest. We are all of us too prone to regard the resolution of the lung as more or less concomitant with defervescence. In typical cases of croupous pneumonia the temperature declines before the processes of resolution have begun, or at least before they have made any considerable progress. Careful examination reveals the fact that there is a decline in dullness two or three days after the crisis, but at least several days invariably elapse before there is extensive resolution even to the crude test of percussion.

Pathologically speaking resolution may fail on account of untoward changes in the diseased area or because of mere delay in the

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\* Read before the Section on Internal Medicine of the College of Physicians, Dec. 13, 1897.

ordinary processes. In the former instances the disease may terminate in abscess or necrosis of the lung, or in interstitial pneumonia (fibroid pneumonia). In the latter instances, after a more or less tedious course complete resolution finally takes place. While I believe it possible that these long delayed cases may be wholly normal in their histological course, I am convinced that in most instances there is at least some interstitial thickening of the septa and connective tissues generally which causes the greater delay in resolution. Termination in fibroid pneumonia of great extent or intensity is very unusual, and it is not my present intention to deal with such cases or with the termination in abscess or gangrene. I desire to limit my remarks entirely to instances in which there has been delay on account of moderate interstitial thickening, or, if such be possible, on account of mere sluggishness in the normal processes.

Delay in the resolution, as I have defined it, occurs more frequently in irregular pneumonic conditions, especially in such as are characterized by proliferative cellular processes—cellular pneumonia according to the classification of Buhl. Instances of this kind are met with among the pneumonias complicating infectious diseases and Bright's disease, and in secondary pneumonias following embolism. Other cases occur in the aged and in persons reduced greatly in vitality. The causes of delay in resolution in such cases no doubt vary in different individuals. Massive exudates are probably more difficult to absorb than moderate ones; and in any case weakness of the respiratory movements probably plays a part. Poor circulation and a weakened heart are further contributory conditions. Frank croupous pneumonia of young persons rarely shows any tendency to delay.

I wish now to sketch hastily the clinical features of a few instances. The first three are cases of pneumonia secondary to gynecological operations, and were most likely instances of embolism followed by pneumonia.

CASE I.—Miss M. A. T., aged twenty-eight years, was admitted to the University Hospital May 11, 1896. During the last ten years she had suffered with dysmenorrhea and pain in the back, and during the last two years she had complained of paroxysmal pain in the left iliac region, increasing backache, headache, and other nervous disturbances. There was a family history of phthisis, but

she herself had been generally in good health. Gynecological examination showed a retroflexed and retroverted uterus with a fibroid tumor the size of a pea in the right cornua. Celiotomy was performed on May 15 and the uterus attached to the abdominal wall. Recovery from the operation was prompt and the wound healed by first intention, but on the 20th she began to complain of pain in the right side and suffered with slight cough; this continued for several days without much aggravation and without definite physical signs. On June 1 the pain increased and she became distinctly more uncomfortable. Physical examination now discovered indistinct dulness at the right base posteriorly, and the patient expectorated slightly blood-tinged sputa. During the next several days the dulness became more distinct but not absolute, and bronchial breathing was confined to a small area. The disease continued with slight fluctuations during several weeks, the patient's general condition never being alarming in the least degree, but blood-tinged expectoration occurred now and then until shortly before her discharge from the hospital. Her general strength improved considerably, but the dulness never disappeared entirely, and the breathing, though no longer bronchial, remained harsh in expiration. During the height of the disease carbonate of ammonia, strychnine sulphate and whiskey were administered freely. On June 12 iodide of potash was ordered and was continued until her discharge from the hospital several weeks later.

CASE II.—Mrs. S., thirty-seven years old, was admitted to the University Hospital April 12, 1897. She had been married nineteen years and was the mother of two children, the youngest being twelve years of age. She had been in good health since the birth of her first child eighteen years ago. On admission to the hospital she was decidedly anemic in appearance, and was brought in in the ambulance looking as if she had been ill in bed for several weeks. She gave a history of having suffered with pain over the entire lower abdomen and as high up as the umbilicus. This was not severe, though continuous, and she complained of a bearing-down sensation in the back, with profuse leucorrhea. Ten days before admission she had been taken with sudden pain in the upper thigh and calf of the leg. This occurred during the night, and was followed at once by swelling of the leg. The limb was

slightly swollen on admission. Her family history was good, though a sister died of phthisis. The gynecological examination showed bilateral laceration of the cervix, and dislocation of the uterus towards the right. Tubo-ovarian disease of the left side the size of a baseball was discovered, and a smaller mass similar in character on the right side. Celiotomy was performed April 16, 1897, and a large tubo-ovarian abscess with adhesions was discovered on the left side. Both tubes and ovaries were removed. In the operation several ounces of pus escaped into the abdominal cavity, and a drain was therefore inserted. On the 19th of April the drain was removed and a tube was inserted instead. On the 25th the tube was removed.

On June 20 the patient was suddenly seized with severe pain in the base of the right lung, and was found in a condition bordering on shock. The breathing in the area indicated was harsh and accompanied by friction sounds and fremitus. The temperature rose to  $100\frac{1}{4}^{\circ}$ . Stimulants were administered and a strong mustard poultice applied.

Subsequently dulness developed and expectoration of a rusty character followed. In a few days hemorrhagic expectoration made its appearance, the sputa at times being almost pure blood. The patient was extremely weak, pulse irregular and feeble, and the respirations were rapid. After five days the temperature declined from the moderate elevation ( $99^{\circ}$  to  $100^{\circ}$ ) to the normal, and remained practically at the normal until her discharge from the hospital. Resolution of the lungs did not occur as is customary in pneumonias, and the case continued almost unchanged for at least two weeks after the temperature had first declined. There were, however, occasional elevations to  $99^{\circ}$  or more. She was ordered stimulants and tonics and directed to breathe deeply several times during the day. The case resulted in complete resolution after one month's duration.

CASE III.—Mrs. M., aged forty-two, had been married twenty-five years. She had had no children. She was admitted to the University Hospital March 2, 1897, complaining of frequent and painful micturition of some years' duration, and with dysmenorrhea and menorrhagia of later origin. There was a feeling of weight and bearing down, and she suffered with headaches and profuse leucorrhea. The urine was normal. The patient had always been in perfect health until the present trouble. The family history

was negative. A fibroid tumor of large size was discovered in the abdomen, and for this celiotomy was performed. The uterus, tumor, tubes and ovaries were removed. The vessels were ligatured after removal of the mass and the abdomen closed without draining. For several days the patient's condition was satisfactory, though the pulse was irregular and rather rapid. Then there was sudden pain at the base of the left chest with indistinct dulness and signs of pneumonic consolidation. There was little expectoration, and this was not hemorrhagic. The temperature at first declined, as had the other symptoms, but subsequently reached a greater elevation than at first. The pulse and respirations became exceedingly rapid, and the patient succumbed after ten days.

The autopsy showed the following conditions: The heart was exceedingly small and flabby. The endocardium and valves were normal, but the myocardium was brownish in color and evidently degenerated. At the root and base of the left lung was found an area of consolidation involving a considerable portion of the lower lobe. This was hemorrhagic in the center and firm; more decidedly pneumonic in the peripheral portions. Throughout there was evidence of advancing organization, as far as could be judged by the macroscopic appearances.

I have reported these three cases as types of pneumonic conditions seen after gynecological operations or in the puerperium. They represent a form of embolic or thrombotic pneumonia that has come under my notice a number of times and has sometimes caused me a great deal of anxiety. Two previous cases (one after ventral fixation and one after some other gynecological operation) and two subsequent cases in puerperal women resembled these closely in the irregularity of development, in the incompleteness of the pathological development, and three of the four in the tediousness of resolution.

A different class of cases may be illustrated by the notes of the two following cases:

CASE IV.—An old man, a patient under my care at Blockley Hospital, presented general arterio-sclerosis and damaged kidneys (pale, watery urine, small trace of albumen, fine granular casts). One morning he was found exceedingly feeble, and the nurse, taking the temperature, found it to be  $103^{\circ}$ . The pulse was rapid and the respiration a little hurried. Physical examination revealed a moderate degree of dulness at the left base, with fine subcrepitan râles and semi-bronchial breath-

ing. During the subsequent forty-eight hours the dulness extended and eventually involved the lower lobe completely. Stimulants were freely administered, and to our surprise the patient gained in strength and the fever declined after seven days' duration. Subsequently the temperature became irregular, rising at times to  $102^{\circ}$ , but generally remaining about normal or subnormal. The lung, however, did not show signs of resolution for two or two and a half weeks. Tonics were administered freely and iodide of potassium given for a week without notable effect. Finally blisters were applied and seemed to be beneficial, as the evidences of resolution followed promptly. A month after the decline of the temperature the chest gave no evidences of the pneumonia.

**CASE V.**—The following notes were made: J. R., aged forty-five years, white, a salesman, was admitted to Blockley Hospital June 9, 1896. Previous history showed that the patient had had the common diseases of childhood; rheumatism three years before admission; specific infection twenty years previously. He used alcoholics and tobacco excessively. Cough for past year; subject to colds. His present condition: a fairly well developed man; chest, some depression under right clavicle, restricted expansion over left side; respirations chiefly abdominal. Left base, increased fremitus and slight dulness. Vesicular murmur harsh; pleural friction. Cough hard and

dry. He gave a history of a chill a few hours before admission. Temperature  $102^{\circ}$ , pulse 80, respirations 28; face flushed; skin dry; slight expiratory groan.

June 10, 1896. Respirations increased; temperature high; cough severe, slight blood-tinged expectoration; increased vocal fremitus; dulness over left base, especially along axillary border. Restricted breathing; a few crepitant râles (scarcely any air seems to enter this portion of lung).

June 11. Temperature  $101^{\circ}$ ; respirations 30, pulse 100. Dulness marked in left lower lobe; bronchial breathing; bronchophony; whispered pectoriloquy; expectoration rusty; diplococcus found.

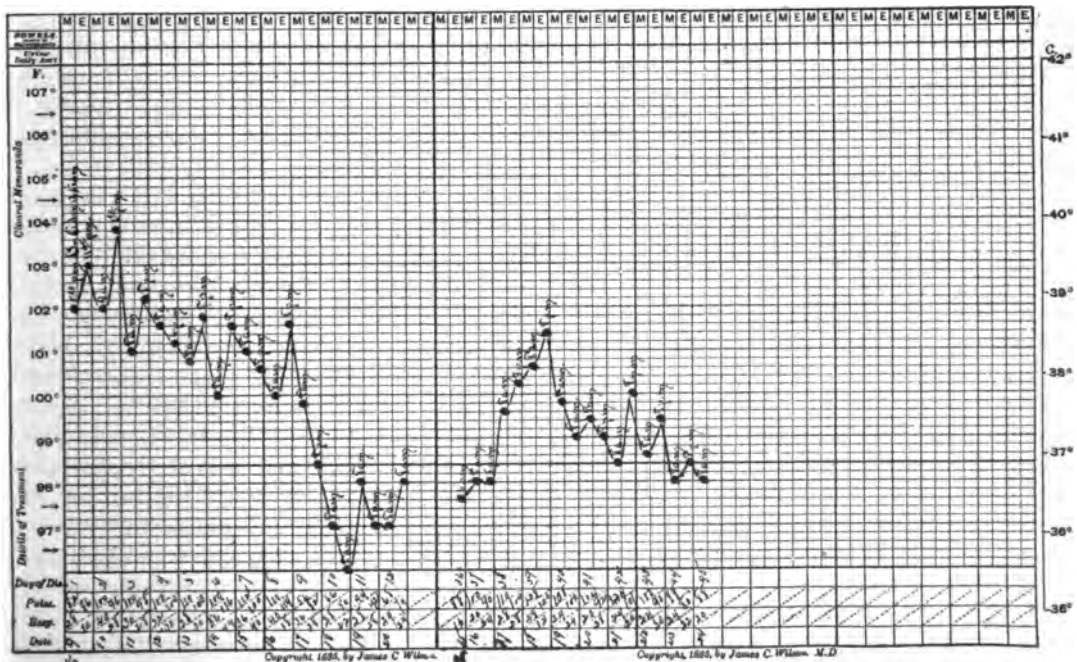
June 12. Temperature  $104^{\circ}$ , pulse 49; complains of severe pain in side; bradycardia, pulse 49.

June 17. Temperature normal; but few râles in chest, feels easier.

June 18. Temperature  $96^{\circ}$ ; bradycardia; few râles; bronchial breathing and pectoriloquy about the same.

July 1. Chest signs about the same; temperature remains low; says he feels well.

Later, the lung showing no signs of resolution, despite various forms of treatment, it was determined to produce an abscess in the subcutaneous tissues to test the value of this procedure. I explained to the patient that this form of treatment was experimental and would probably be useless and certainly



**CASE V.**—The first curve shows the febrile movement in the primary pneumonia. The break in the chart represents an apyretic interval of nearly four weeks, and the second curve the fever following the turpentine injection.



painful. He was willing, however, to have it undertaken.

July 15, 2 P.M. Injected turpentine, one-half drachm, into subcutaneous tissue of right side of chest (anterior axillary line about the eighth rib). During the rest of the day he complained of severe pain at the seat of injection; slept but a short time during night. Temperature 102°.

July 16. Area of injection red and swollen; the left base remains about the same.

July 17. Seat of injection very red and angry looking; extremely tender over consolidated lung; fine râles on inspiration.

July 18. Beginning softening is apparent.

July 21. Abscess formed; evacuated about eight fluidounces of creamy pus. No bacteria. Lung clearing rapidly.

July 23. Abscess doing well; only very slight harsh breathing over left base.

August 4. Has gained in weight; chest perfectly clear.

The condition of the blood is shown in the following figures:

|              | Red corpuscles | White corpuscles. |
|--------------|----------------|-------------------|
| July 15..... | 4,201,000      | 31,563            |
| July 16..... | 4,605,000      | 15,625            |
| July 17..... | 4,690,000      | .....             |
| July 18..... | 4,245,000      | 7,549             |
| July 19..... | 4,735,000      | 10,770            |
| July 20..... | 4,600,000      | 7,688             |
| July 21..... | 4,760,000      | 15,137            |
| July 22..... | 4,900,000      | 17,188            |
| July 23..... | 4,290,000      | 17,550            |
| July 25..... | 4,910,000      | 13,281            |
| July 27..... | 4,265,000      | 13,010            |
| July 29..... | 3,810,000      | 14,985            |

DIFFERENTIAL COUNTS OF LEUCOCYTES.

|   | Polymorphous. | Mononuclear and transitional. | Lymphocytes. | Eosinophiles. |
|---|---------------|-------------------------------|--------------|---------------|
|   | Per cent.     | Per cent.                     | Per cent.    | Per cent.     |
| 1. Before injection of turpentine, June 20..... | 30            | 5.2                           | 45.2         | 19.6          |
| 2. After injection, July 17.....                | 71.2          | 6                             | 20           | 2.8           |
| 3. July 21.....                                 | 85.1          | 4.1                           | 8.8          | 2             |

In this case there was not the slightest sign of resolution during a full month prior to the development of the abscess, and immediately after this the dulness diminished, moist râles became audible, and the breathing became less bronchial. In a few days the lung had cleared entirely, and the patient soon recovered completely.

*Treatment.*—In discussing the treatment of delayed resolution it is well to recognize that several causes contribute. These I have referred to above, but may again enumerate as excessive exudate, poor aeration of certain

areas, feeble circulation, and to these may be added general enfeeblement of vitality.

Various remedies have been suggested and different authors have regarded this or that drug as most efficacious. For my own part I am convinced that no form of medicinal treatment is particularly useful. I have employed tonics, stimulants, arsenic and iodide of potassium and ammonium repeatedly in the above reported cases, or in others not here recorded, without observing the slightest effect. Stimulants seem to me most rational, but I cannot say that they have ever in my experience done good by themselves.

Counter-irritation has, however, been of apparent benefit in every case in which I have made trial of it, and generally in proportion to its severity. Strong mustard poultices have sometimes been useful, but blisters were always more efficacious. I have never used the actual cautery, though I should be tempted to employ it in some cases. The action of counter-irritants might be explained in two ways: they certainly lead to increased respiratory movements for a time, and if repeated may effect a continuous beneficial effect of this kind; in the second place it is not impossible that they affect the circulation in the lungs. Caton, in a discussion some years ago before the Pathological Association at Oxford, claimed to have demonstrated that counter-irritation of the skin of the chest affects the pulmonary arterioles profoundly. This claim of course requires confirmation, but there is abundant clinical evidence of a reliable kind to show that external counter-irritation influences deep-seated structures or organs. Most probably such influence is exerted by reflex action through the nervous system.

Next to counter-irritation I should rank systematic breathing exercises, either in the form of deep inspirations and expirations, or of exercises with bottles after the method suggested by James for the treatment after evacuation of cases of empyema. Adequate breathing would perhaps properly rank as the most important requisite for speedy resolution, but in cases of marked consolidation has disadvantages, such as the tendency to exhaust the patient, and the lack of expansion of the affected side rendering the breathing useless. In cases, however, of moderate consolidation or persistent bronchovesicular breathing after pneumonia, I should rely upon breathing exercises rather than counter-irritation. In one case under my care, in a young man of about nineteen or



twenty. recovery from the active manifestations of the disease occurred normally, but for some time there was persistent semi-bronchial breathing with some dulness. He was directed to exercise his respiratory muscles twice daily, and soon began to improve. His chest expansion increased greatly, but he did not recover completely for a year. Pleural thickening may have had some part in the behavior of this case, but I could never assure myself of its existence.

In one of the cases reported I employed a rather unusual form of treatment, first suggested by Fochier (*Lyon Médical*, Aug. 23, 1891). This observer, noting that the occurrence of local suppuration in puerperal fever is often followed by improvement, suggested that artificially induced suppuration might benefit cases of puerperal sepsis. He practised injections of turpentine (about one centigramme per dose), giving three or four injections in different places. Following a suggestion of Fochier that the same form of treatment might be of use in non-pyemic diseases like pneumonia, Lepine (*La Semaine Médicale*, Feb. 27, 1892) practised it in a case of pneumonia on the twelfth day when the patient was in a desperate condition. Recovery ensued and was seemingly largely the result of the treatment. Subsequently Dieulafoy, L. Bard, Gingeot and Raoul reported successful cases, while Rendu referred, in discussion of one of the papers, to three cases that terminated unsatisfactorily. Two of these, however, were moribund when the treatment was instituted, and the third was a bronchopneumonia and not croupous.

I have not myself employed this treatment in the class of cases in which it was recommended—that is, in pneumonias of severe character during the latter period of the process (gray hepatization)—and cannot speak of its usefulness in such cases. The instance above reported was one in which there was no immediate danger to life and no existing toxemia. Fochier advanced the theory that the artificial abscesses operate by “fixing” the toxic substances (*abscess of fixation*), but Chantemesse and others believe the beneficial effect to be somehow connected with an increase of phagocytic activity on the part of the leucocytes of the blood. Without entering into this matter I may call attention to the remarkable change in my case in the differential counts of the leucocytes before and after the injection of turpentine. The number of eosinophilous cells and of polymorphous forms was of particular interest.

The rapid increase of the latter may furnish some ground for the assumption that an increased phagocytic activity is induced, but my own view would take a different form. I am convinced that the phenomena of leucocytosis are largely the result of altered distribution of leucocytes and not of increased production. It has been demonstrated that in the process of hypoleucocytosis the white corpuscles became arrested in the capillaries of the lungs, liver, and other structures. Reversely it is likely that leucocytosis is partly at least the result of a liberation of leucocytes from various parts of the body. In such a case as I have reported it is not improbable that large numbers of polymorphous leucocytes remained within the pulmonary circulation until a more powerful chemotactic influence caused their liberation. It may be that the treatment is beneficial in this manner.

Briefly, my conclusions regarding the treatment of cases of pneumonia with a tendency to delay of resolution are:

1. In cases of slight tendency to delay of resolution manifested by moderate dulness and persistent broncho-vesicular breathing, systematic breathing exercises are of the greatest importance.
2. When considerable dulness persists, active counter-irritation should be practised and tonics and stimulants administered.
3. The production of aseptic abscesses may be useful. The cases in which this has been practised are too few to warrant absolute conclusions, and the treatment is too painful for general application.

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#### THE CLIMATE OF ATLANTIC CITY AND ITS USEFULNESS IN DISEASE.

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Forty years ago, when the beautiful island on which Atlantic City is built was an arid waste of sand, Philadelphia physicians recognized the wonderful health-giving properties of the climate it possesses. At first an occasional patient courageously ventured to the place; later, as hotels went up, they came in greater numbers; at the present day the wide-spread fame of this resort draws health seekers from all parts of the world. Abundant evidence from most credible sources now exists as to its usefulness in many forms of disease. It will be my purpose in this paper to describe some of the local condi-

tions and causes that contribute to this remarkable climate.

From meteorological tables, geographical and other data, a general opinion can be formed as to the nature of the climate of a section and whether it is favorable or unfavorable to health. It will generally be found, however, that there are strictly local conditions which should enter into consideration in determining whether a given locality is or is not the best place to send a case.

"Climate is so dependent upon purely local conditions, pertaining often to only a limited area of territory, that it is impossible for any work based solely upon official data taken at fixed points to convey anything more than a generalization. These conditions can only be ascertained by a careful study of the localities claiming the patronage of the health seeker. The physician who prescribes climatic change for his patient on generalizations will benefit just about as large a proportion of them as if he filled his prescriptions for all his patients from the same bottle. The ideal health resort must have natural conditions on which to build."\*

Geographically Atlantic City is situated on an island just off the coast of New Jersey, lying in latitude  $39^{\circ} 22'$ . This island, about three-quarters of a mile in width, and ten miles in length, is completely surrounded by salt water—a point to be borne in mind. From its magnificent stretch of ocean-swept beach, an arm of water known as "The Thoroughfare" is sent around it, dividing it from the mainland. Beyond this, extending shoreward, there is a five-mile expanse of salt meadow land.

The coast of New Jersey has a general direction from southwest to northeast, but the beach front of the island trends more to the west, thus causing it to face almost to the south. It is possible that this may be one of the factors accounting for some of the characteristics of its climate which are not possessed even by other Jersey resorts.

The soil is porous and sandy. Water therefore soon soaks through it, leaving no standing pools. Even the natural atmospheric moisture seems to be absorbed by the dry sand. The growth on such a soil is necessarily scant, preventing the possibility of disease which lurks in decayed vegetation.

It seems to be a common impression that the air at the seacoast, especially during the

winter months, must necessarily be heavy and damp. This is not so by any means. One of the most distinctive features of the climate of Atlantic City is the dryness and bracing quality of the atmosphere. There are of course occasional mists and foggy days; but by far the greater part of the time the air is dry, producing a feeling of buoyancy, as if it were wafted from mountain heights. Taking even all the misty days we have into consideration, reference to the accompanying charts will show a mean humidity extending over three years of but eighty-one per cent., while in past years it has frequently fallen below this figure.

| MONTHLY MEAN PRESSURE.       |       |       |       |       |       |       |       |       |       |       |        |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Year.                        | Jan.  | Feb.  | Mar.  | April | May   | June  | July  | Aug.  | Sept. | Oct.  | Annual |
| 1891....                     | 30.01 | 30.06 | 30.04 | 29.98 | 30.00 | 29.93 | 29.99 | 29.96 | 30.12 | 30.03 | 30.04  |
| 1892....                     | 30.01 | 30.06 | 30.04 | 29.98 | 30.00 | 29.97 | 29.93 | 29.98 | 30.13 | 30.03 | 30.02  |
| 1893....                     | 29.94 | 30.09 | 30.02 | 29.91 | 29.95 | 29.96 | 29.93 | 29.93 | 30.00 | 30.07 | 30.00  |
| MEAN MAXIMUM TEMPERATURE.    |       |       |       |       |       |       |       |       |       |       |        |
| Year.                        | Jan.  | Feb.  | Mar.  | April | May   | June  | July  | Aug.  | Sept. | Oct.  | Annual |
| 1891....                     | 40.5  | 45.0  | 42.1  | 55.5  | 62.8  | 72.6  | 73.5  | 76.8  | 75.1  | 61.1  | 58.7   |
| 1892....                     | 39.5  | 43.5  | 41.8  | 53.5  | 61.9  | 73.9  | 76.8  | 79.1  | 71.9  | 63.1  | 57.6   |
| 1893....                     | 39.8  | 43.1  | 42.4  | 53.2  | 62.7  | 72.4  | 73.5  | 77.4  | 70.7  | 62.8  | 57.0   |
| MEAN MINIMUM TEMPERATURE.    |       |       |       |       |       |       |       |       |       |       |        |
| Year.                        | Jan.  | Feb.  | Mar.  | April | May   | June  | July  | Aug.  | Sept. | Oct.  | Annual |
| 1891....                     | 30.1  | 32.5  | 31.5  | 42.5  | 50.4  | 59.5  | 64.1  | 67.1  | 62.8  | 48.1  | 46.7   |
| 1892....                     | 30.5  | 32.3  | 28.3  | 39.7  | 50.8  | 62.8  | 64.3  | 68.0  | 59.2  | 46.8  | 45.0   |
| 1893....                     | 30.0  | 30.0  | 30.6  | 41.3  | 50.1  | 61.2  | 66.2  | 66.5  | 58.6  | 50.5  | 44.7   |
| MEAN PERCENTAGE OF HUMIDITY. |       |       |       |       |       |       |       |       |       |       |        |
| Year.                        | Jan.  | Feb.  | Mar.  | April | May   | June  | July  | Aug.  | Sept. | Oct.  | Annual |
| 1891....                     | 84    | 82    | 78    | 75    | 78    | 82    | 84    | 84    | 82    | 79    | 80     |
| 1892....                     | 81    | 82    | 82    | 76    | 81    | 90    | 84    | 80    | 76    | 74    | 80     |
| 1893....                     | 85    | 78    | 82    | 68    | 84    | 88    | 86    | 84    | 78    | 80    | 83     |

ANNUAL PRECIPITATION.

| STATIONS.                | YEAR. |       |       |
|--------------------------|-------|-------|-------|
|                          | 1894. | 1895. | 1896. |
| Atlantic City, N. J..... | 33.21 | 28.76 | 30.90 |
| Boston, Mass.....        | 36.62 | 40.17 | 37.55 |
| Cape May, N. J.....      | 36.24 | 27.23 | 34.79 |
| Charleston, S. C.....    | 56.87 | 55.18 | 47.78 |
| Galveston, Tex.....      | 40.64 | 38.91 | 23.71 |
| Jacksonville, Fla.....   | 56.84 | 46.80 | 40.19 |
| New Orleans, La.....     | 54.44 | 56.44 | 49.68 |
| New York City, N. Y..... | 44.17 | 35.73 | 37.99 |
| Norfolk, Va.....         | 53.09 | 45.41 | 44.22 |
| Portland, Me.....        | 37.13 | 38.78 | 45.44 |
| Savannah, Ga.....        | 52.80 | 54.84 | 44.24 |
| Wilmington, N. C.....    | 45.18 | 46.27 | 40.43 |
| Asheville, N. C.....     | 34.25 | 36.81 | 37.84 |
| Philadelphia, Pa.....    | 40.34 | 31.01 | 32.15 |

\* This paragraph by Dr. A. F. McKay (*Medical Record*, Oct. 31, 1897) is so much to the point that I have quoted it bodily.

The dryness of the climate is, however, best shown by an examination of the rain-

fall. This will average about two and a half inches per month, or thirty inches annually. These figures are in striking contrast to those of other points along the coast. At none of them does the rainfall approach so low a point, and at many it will be seen that the annual precipitation is from fifty to sixty inches.

The question of temperature is always an important one in the study of any climate. It has gotten to be a saying among weather observers that Atlantic City breaks all rules of meteorological calculation in this regard. Severe extremes of temperature are unknown here. Even in the coldest winter weather the middle of the day is usually pleasant, the temperature at noon rarely being below 40°. As this is the most convenient time for invalids to be out, it is fortunate that it is rarely cold enough to be disagreeable to them.

On the coldest day of last winter (January 27, 1897) Atlantic City showed the highest temperature of any Eastern city, and the same average temperature for the day as New Orleans. On the other hand, during the most intense heat of July and August the thermometer seldom registered above 85°, while the average temperature at this time of the year is 71.5°.

The tables show a mean maximum temperature for three years of 57.7°, a mean minimum of only 45.5°, or an average annual temperature of 51.6°. A daily comparison will show that it is six to ten degrees warmer here in winter than in Philadelphia, and that much cooler in summer.

There are several factors to be mentioned in accounting for this remarkable record, most important of which are: the winds; the geographical position of Atlantic City, which has been described; and the Gulf Stream. During the winter months the prevailing direction of the winds is from the west and northwest. These winds come to us across sixty miles of the sandy soil of New Jersey. They are not only warmed by the radiation of heat from it, but the sand absorbs their moisture and dries them. If the winds, on the other hand, are from the south, southeast, or east, they become heated as they pass over some three hundred miles of Gulf Stream. This leaves the northeasters as the only disagreeable winds we have. Blowing down between the Gulf Stream and the coast they have no modifying influence. These, however, are of rare occurrence, and do not last longer than a day or two at a time.

PREVAILING WIND DIRECTION.

| Year. | Jan. | Feb. | March. | April. | May. | June. | July. | August. | Sept. | October. | Nov. | Dec. | Annual. |
|-------|------|------|--------|--------|------|-------|-------|---------|-------|----------|------|------|---------|
| 1891  | NW   | NW   | NE     | SW     | S    | S     | S     | S       | SE    | NW       | NW   | SW   | NW      |
| 1892  | NW   | NE   | NW     | SW     | SW   | SW    | SW    | SW      | E     | W        | NW   | N    | SW      |
| 1893  | NW   | NW   | NE     | SW     | SW   | SW    | SW    | SW      | SW    | E        | NW   | SW   | SW      |

AVERAGE HOURLY WIND VELOCITY.

| Year. | Jan. | Feb. | March. | April. | May. | June. | July. | August. | Sept. | October. | Nov. | Dec. | Annual. |
|-------|------|------|--------|--------|------|-------|-------|---------|-------|----------|------|------|---------|
| 1891  | 13.6 | 12.8 | 15.4   | 12.4   | 12.8 | 10.6  | 10.4  | 9.1     | 9.0   | 14.5     | 12.7 | 12.4 | 12.1    |
| 1892  | 13.7 | 16.2 | 15.0   | 12.1   | 12.1 | 11.5  | 8.9   | 8.6     | 10.5  | 11.4     | 12.9 | 10.5 | 12.0    |
| 1893  | 11.9 | 14.3 | 13.7   | 12.8   | 11.1 | 10.4  | 9.2   | 10.5    | 10.7  | 10.7     | 12.5 | 13.0 | 11.7    |

NUMBER OF CLEAR, PARTLY CLOUDY, AND CLOUDY DAYS.

| Year. | Jan.               | Feb. | March. | April. | May. | June. | July. | August. | Sept. | October. | Nov. | Dec. | Annual. |
|-------|--------------------|------|--------|--------|------|-------|-------|---------|-------|----------|------|------|---------|
| 1891  | Clear.....         | 11   | 11     | 11     | 15   | 11    | 19    | 10      | 9     | 17       | 13   | 12   | 154     |
|       | Partly Cloudy..... | 12   | 6      | 7      | 10   | 9     | 5     | 14      | 13    | 11       | 9    | 7    | 113     |
|       | Cloudy.....        | 8    | 11     | 13     | 5    | 11    | 6     | 7       | 9     | 2        | 10   | 8    | 98      |
| 1892  | Clear.....         | 11   | 8      | 10     | 10   | 9     | 11    | 7       | 11    | 14       | 12   | 10   | 134     |
|       | Partly Cloudy..... | 7    | 6      | 8      | 11   | 13    | 14    | 10      | 12    | 13       | 17   | 8    | 136     |
|       | Cloudy.....        | 9    | 15     | 13     | 9    | 9     | 5     | 5       | 8     | 3        | 2    | 12   | 106     |
| 1893  | Clear.....         | 9    | 8      | 8      | 9    | 7     | 14    | 10      | 15    | 19       | 13   | 12   | 134     |
|       | Partly Cloudy..... | 15   | 7      | 9      | 13   | 11    | 14    | 15      | 8     | 8        | 11   | 11   | 132     |
|       | Cloudy.....        | 7    | 13     | 13     | 10   | 6     | 6     | 1       | 4     | 6        | 8    | 15   | 99      |

The nearness of such a large body of ocean water is itself an important agent in the modification of the climate. Sea water possesses a fairly constant temperature, which does not fluctuate much from winter to summer.

During the rigors of winter, when the earth and air are colder than the water, which remains constant, this fact causes the water to serve as a blanket by which the heat that would be lost from the soil by radiation is retained. Temperature is thus elevated in winter. In summer, however, the opposite effect is produced, for the atmosphere is now warmer than the water, and when everything is roasting inland the temperature is made refreshingly cool here by reason of the evaporation from the surface of so large a body of water, and the breezes wafted from it. In this way the climate is made more equable, and less subject to extreme or sudden changes of temperature either in winter or summer.

In the consideration of a place to which patients may be referred for their health, it is highly necessary that a locality be chosen which has a majority of its days bright and sunny. Dark days depress the invalid and deprive him of the sun, besides shutting him in the house, so that he also loses the benefit derived from outdoor exercise. A casual reference to the statistics disproves the com-

mon impression that life by the sea must be bleak and dreary. It is safe to say that there are at least 265 days in the year on which an invalid could be out enjoying the delights of the famous Board-walk. This leaves but 27.5 per cent. of the days—a little more than one-fourth—on which the sun hides his face entirely. Quite a percentage of these occur in March, the disagreeable month everywhere, and such weather is usually of very short duration. Most of the time the weather is bright and sunny, the air bracing and exhilarating, and the winds tempered with a softness that is surprising; while during the autumn months no wealth of words can paint the glory of the sea and climate.

Undoubtedly the most important modifier of the climate of all the Atlantic States is the wonderful influence of the Gulf Stream, which bears a peculiar relation to the coast opposite Atlantic City. It has been determined by the United States Geodetic Survey that there is a mutual relation between the moisture, temperature and barometric pressure on land and the varying velocities and different positions of the currents of the Gulf Stream. The surface velocity, according to Pillsbury, is sensibly affected by barometric differences, forming low and high areas of pressure. These currents have also daily, monthly and yearly variations in position, and each motion is no doubt governed by laws that are as yet but dimly understood. The Gulf Stream follows the declination of the moon like a needle does a magnet. Its axis moves from west to east as the moon proceeds from high declination to low, and crosses the equator. Its volume expands and contracts. Even its temperature, which is about 80°, presents variations within narrow limits.

The conclusions adopted by Professor Bache from the observations taken under his direction were as follows: "That between Cape Florida and New York the Gulf Stream is divided into several bands of higher and lower temperature, of which the axis (of the stream) is the warmest, the temperature falling rapidly inshore and more slowly outside. This is not only the case at the surface, but with modifications easily understood at considerable depths. That between the coast and the stream there is a fall in temperature so abrupt that it has been aptly called the *cold wall*. The cold wall extends with varying dimensions and changes of its peculiar features along the coast from Cape Florida, northward as far as examined. Inside this wall of colder temperature there is another

increase, while outside the warmest band, which is next the cold wall, there is another warm and one other cold band."

The innermost of these warm bands approaches as near as sixty-five miles from the coast, opposite Atlantic City. Not only its proximity to us here must be noticed, but also its course. At this point it takes a bend running a little more than a half degree of latitude to the northeast, then bending due east in latitude 40°. A certain outlying portion of Gulf Stream water, therefore, setting in the direction of this current will, when it makes this sudden turn, continue the original direction of the current, being deflected as a tangent from the curve of the stream. The beach of Atlantic City with its southern exposure is situated just where it would receive with open embrace whatever modifying influences might be derived from such a current setting in this direction. What leads me to believe this fact has some bearing on the question is that no other seaside resort even along the Jersey coast possesses exactly the climate we have here.

It may be of some interest to digress here a little in order to describe briefly the two generally accepted scientific theories of the causes of the formation of this remarkable body of water known as the Gulf Stream. These are the (a) Wind Theory and the (b) Density Theory.

(a) The *Wind Theory*, of which Pillsbury is an advocate, supposes that any permanent wind blowing constantly in the same direction across a body of water will cause such friction between the surface particles and the lower strata of the air that these particles will tend to move with the wind; also the wind caught behind the crests of waves would push these along. The friction thus produced among the surface particles of water is transmitted from layer to layer, with continually diminishing force as the depth increases. It was calculated by Agassiz that 100,000 years was ample time to allow friction of this sort to be communicated from the surface to the bottom—a depth, say, of 2000 fathoms. It is held therefore that the trade winds blowing in the same direction for ages, over the Atlantic Ocean, have by this friction process, slow in itself yet attaining a mighty momentum as the centuries have rolled on, been able to move this vast body of water along in a constant stream.

(b) The advocates of the *Density Theory* hold that ocean currents owe their origin to the difference between the specific gravity of

sea water at one place and sea water at another place; whether this be due to difference of saltness, temperature or what-not, it disturbs equilibrium so that currents result.

The effect of heat, as at the equator, causes a lesser density of the surface water, while the effect of the cold of the polar regions causes a greater density. This latter being heavier sinks as it is cooled by reason of its greater specific gravity and diminished bulk, and sinking, causes a flow of water to be drawn into its basin from the surrounding surface area of water. Such a supply must come from a yet greater distance; and so this cooling causes a set of water in the direction of the poles, when a corresponding deep-down current of cold water sets toward the equator to be again heated.

Also precipitation over the central portion of the water hemisphere of the earth is greatly in excess of evaporation. Northwards evaporation is in excess of precipitation. The water thus drawn from polar seas by evaporation is quickly hurried down to the areas of low barometric pressure, where precipitation follows. But its loss from the polar regions makes the basin referred to above still larger, and so adds an additional impetus to the set of the water northward. The disturbance of equilibrium thus produced between equatorial and polar water, by cooling and evaporation, causes a steady current to flow from gulf to poles, and a return undercurrent from poles to the equator.

These are in brief the two most prominent among the many theories that have been advanced as to the formation of the Gulf Stream. It must be true that warm water comes from the equator and cold from the polar regions, and whatever be the mode of transfer the modification of climate is due to its presence rather than to the method of its delivery.

But to return to Atlantic City. After having studied the meteorological conditions and geographical environments that conduce to its unique climate, the practical question naturally arises, What is it good for? What classes of disease will receive benefit by a sojourn in such a climate? Climatology is a subject beset with many and peculiar difficulties. While a great and growing department of therapy, it is as yet but dimly understood by the bulk of the profession. Formerly climatic change was only thought of as a remedial agent in respiratory diseases. Now every chronic deviation from health is studied with reference to change. Such change,

however, must not be recommended in a haphazard way. There must be some rational basis underlying it if any good is to be derived therefrom.

The climate of Atlantic City is a dry one, tonic and alterative in its qualities. Its air is both a stimulant and a sedative. Actual experience drawn from many sources has demonstrated that those suffering from almost all functional disturbances, nervous prostration, overwork of both mind and body, depression from any cause, indigestion, insomnia, or any torpid state of the system, as well as strumous conditions and diatheses, are much benefited by the bracing qualities of the air. Residence here has proven of inestimable value to that elderly class of cases whose health and strength seem to have forsaken them, making them chronic invalids. Long-lasting and obstinate diseases of women rebellious to treatment at home oftentimes show marked improvement or disappear entirely under the alterative influence of the air here.

There is a class of cases in the practise of nearly every physician whose management becomes very trying to his skill. These are the convalescents from severe and exhausting diseases or operations who seem to reach a standstill. They remain without improvement of vitality or appetite till the patience of the family becomes exhausted, while the physician pursues resource clear to the end of his string without avail. Such cases usually have an appetite before they have been here twenty-four hours; they seem to improve almost as they cross the meadows. As soon as they come under the influence of the stimulating air oxidation is increased. Its soporific effect is at the same time a sedative to a disordered nervous system. Its purity and freedom from unsanitary conditions and miasmatic influences allows more rapid elimination of deleterious matter from the system.

On the other hand, the softness of the air and its balmy warmth soothes the stiffened joints of the gouty and rheumatic; relieves the distress of emphysema and asthma, especially those cases coming from inland or from high altitudes. There are some asthmatics, however, whose difficulties are aggravated by coming here. These should seek the warmer, more sedative climate of the far South. The cases that do not do well at the seashore will oftentimes be relieved by the mountains, and *vice versa*.

Whether due to the antiseptic and alterative qualities of the atmosphere, or to the absence

of the pollen of vegetation, sufferers from hay-fever enjoy comparative immunity from their malady. Atlantic City has been referred to as a "hay-fever paradise!" Most noteworthy perhaps and most striking is the number of people living here who have been cured of chronic bronchial and catarrhal affections. This is no doubt brought about by the alterative influence of iodine, bromine, chlorine, oxygen, and the ammonia salts, with which every inspiration they breathe is laden. At the same time it must be remembered that the air is pure and free from the dust of a city, factory smoke, exhalations from slum districts, and other impurities that serve to keep up an irritation once started in the respiratory tract.

Skin diseases are not common here. They are often mitigated or disappear entirely, for the atmosphere, while dry, is not irritating to the skin like that of high climates.

The profession formerly held that high altitudes were better adapted to beginning cases of phthisis. The trend of opinion, however, now seems to be that neither wind, humidity nor altitude in themselves and apart from other factors play so important a part as do the purity of the air, its percentage of free ozone, and the absence of unsanitary conditions. Cold, humid winds chill the surface of the skin by conducting away its heat, and drive the blood inward. It is easy to see that this does an already inflamed lung no good. Such weather should always be avoided therefore by a consumptive. Raw or penetrating days will occur at times in every climate. Atlantic City, however, has a very small percentage of such days, and they soon give way to sunny weather again.

Much may be said in favor of this place as a resort for tubercular patients. Not a small advantage is its proximity to the large centers of population. Long journeys from home are always depressing to invalids. The best results may often be obtained by sending the sick one to a place near enough to his home for him to enjoy the comforts of friends, and where the change will not be too radical.

The following points have been enumerated as reasons why the well known climates of New Mexico and Southern California are model ones for phthisis, viz.: (1) A dry, aseptic atmosphere; (2) a maximum of sunshine and a minimum of cloud; (3) a slight variation of temperature between extremes of heat and cold; (4) a minimum likelihood of sudden changes of temperature; (5) a light, porous soil.

If what has been said in this climatic study has been carefully followed and the tables examined, it will be easily seen that Atlantic City meets these requirements adequately in each case, and her climate stands as the peer of any resort for phthisical patients. In the earlier stages of the disease, when it is threatening rather than in actual progress, or if the area of diseased tissue is small, not progressive, no wasting nor hectic of importance, and digestion is good, it may be recommended with confidence. This climate is especially good where tuberculosis has resulted as a part of a general breakdown from overwork, and where excavation is not rapidly extending.

Cases of fibroid phthisis, or phthisis associated with catarrhal or laryngeal trouble, much nervous irritability, emphysema, bronchitis, bronchiectasis, organic heart disease, or any brain or spinal affection, and in other conditions where high altitude is directly contraindicated, will usually receive much benefit here. Even in advanced cases with double cavities, degenerative diseases of the blood-vessels, ulceration of the intestines or albuminuria, temporary improvement may often take place. It is only temporary, however. The death warrant of such patients has already been written. Their best place is home, where their latter days may be made comfortable and their end be among friends. If they insist on climatic change the warm and sunny South is better for them and may prolong their lives a short time. The air here is too stimulating for this class of cases.

In conclusion, I wish to make acknowledgments to Prof. Willis L. Moore, chief of the United States Weather Bureau, for the tabulated statistics he has so kindly furnished me, and to the United States Geodetic Survey for the report of the investigations of the Gulf Stream.

1719 PACIFIC AVE.

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*DANGER OF INJURY TO THE HEART IN  
THE TAPPING OF THE PERICARDIUM  
FOR THE RELIEF OF PERICARDIAL EFFUSION.*

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BY H. A. HARE, M.D.,  
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of Philadelphia.

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The importance of giving relief to patients suffering from cardiac and respiratory distress as a result of an accumulation of fluid in the pericardial sac renders it advisable for us to

consider the best means to this end. Every physician of large experience finds it necessary from time to time to aspirate fluid from the pleural cavities to relieve the patient of the symptoms arising from interference with respiration, or from the peritoneal cavity to relieve distress due to distention and pressure. Very few of us, however, resort to such means of relief when we believe that a pericardial effusion of dangerous extent impairs the efficiency of the heart; first, because the diagnosis of pericardial effusion from cardiac dilatation and enlargement is difficult, and second, because the fear exists that the heart may be wounded. This fear of a cardiac wound is the cause of the timidity, for many have the idea that a cardiac wound means death and therefore hesitate lest the immediate result of the operation be fatal. My object in this paper is to point out the fact that wounds of the heart *per se* are not necessarily followed by serious results; that paracentesis pericardii should be performed oftener than it is; and that the physician in charge of cases of infectious disease, whether they be pneumonic, tubercular, or rheumatic, should remember that pericarditis with effusion often develops insidiously and is responsible for many signs of cardiac embarrassment and death which are erroneously considered to be due to heart clot or degenerative processes in the myocardium. While recognizing the great difficulties in differentiating between pericardial effusion and pericardial thickening, hypertrophy, dilatation and displacement of the heart, these will not be considered in this paper. They will be found well discussed in Dr. Frederick C. Shattuck's paper which was read before the Association of American Physicians in May, 1897. From this and many other papers it is evident that life can be saved by tapping the pericardium in a certain proportion of cases in which an effusion exists, and to those who are particularly interested in this subject we may mention three other notable papers on the methods of tapping the pericardial sac, namely, the exhaustive paper of Dr. John B. Roberts, published some years ago, and two others read this year at the meeting of the American Surgical Association by Porter of Boston and Roberts of Philadelphia (*American Journal of the Medical Sciences*, December, 1897), the latter gentleman thus making his second contribution to the subject. These papers also prove the usefulness of this mode of obtaining relief in pericardial effusions.

We pass on, then, to a consideration of the question as to the danger of heart wounds. An examination of the literature shows that injuries to the heart are by no means necessarily fatal, and that when death is produced by a wound of the heart muscle, death often does not ensue as rapidly as [if it were a wound of a large blood-vessel. An illustrative case of this character is one recorded by Cristiani in *Lo Sperimentale* for March, 1889: A man aged twenty-five was stabbed, in a brawl, in several places. One wound was in the fifth interspace on the left side, near the anterior axillary line. There was a second wound in the eighth interspace on the same side, extending from the posterior border of the axilla toward the shoulder blade. There was also a stab of the left hip and several stabs on the right arm. After the second wound was received—the one near the præcordia—the man fell, but retained consciousness. After being taken home he was seen by a physician, who found him still conscious, with respirations at fifty a minute and pressing dyspnea. This state lasted for eight or ten days. The wound over the heart healed in seven days, and that in the eighth interspace in eight days. On the eighteenth day the patient got up, though still weak, and on the thirty-seventh day, while yet feeling ill, he walked to Pisa and back—a distance of six miles and a quarter. This was done in the morning; in the afternoon of the same day he walked nearly two miles, climbed a tree after a bird's nest, and fell to the ground, dying ten minutes later.

At the autopsy it was found that the wound in the fifth interspace had penetrated the pericardium and deeply wounded the wall of the left ventricle at a distance of three and a half centimeters from the apex, but had not actually entered the ventricle. The mouth of this wound was filled with a soft clot, which was removed, and a mass of organized blood-clot was found below it. This mass had ruptured by reason of the increased strain, so that there was an opening into the ventricle through which the fatal hemorrhage took place into the pericardium.

In the same article is a report by Messeri, of Florence, relating the case of a man thirty years old, who was stabbed in the fourth interspace a half inch to the left of the sternum. When admitted to the hospital he was apparently dying, but he soon recovered, and his wound healed rapidly. Twenty-one days later he asked to be discharged, and when this was refused fell into a rage and

dropped dead almost at once, with cyanosis and dyspnea as prominent symptoms. The thorax contained much blood, and an open wound was found in the right ventricle near the sulcus, and also a wound of the septum. Messeri also refers to statistics collected by Zanetti, who finds that in one hundred and fifty-nine cases of wound of the heart, in only ten was the septum injured; and that in seven of these death occurred at once, in one it took place in an hour and a quarter, in another in two hours, while the other patient lived twenty days.

Having recently had occasion to look into this matter myself, I have found in medical literature a number of cases recorded where similar survival after severe injury occurred. Thus, Fischer has collected four hundred and fifty-two cases of injury to the heart and pericardium, in no less than seventy-two of which the patients recovered, while in two hundred and seventy-six death took place at periods varying from one hour to nine months. Death was immediate in one hundred and four cases. Of the seventy-two recoveries, examinations, made long after, in thirty-six of the cases proved the diagnosis to be absolutely correct. Of these seventy-two cases, ten were punctured wounds, forty-three incised, twelve gunshot, and seven lacerated; fifty were wounds of the heart, and twenty-two of the pericardium.

Purple also records forty-two cases of wounds of the heart in which death did not come on immediately. Randall records a case of a colored boy who lived sixty-seven days with a number of shot in the heart muscle, and Ferrus a case in which the patient lived twenty-one days with the heart transfixed with a skewer.

Ollivier and Lawson have collected twenty-nine instances of penetrating heart wounds, of which only two proved fatal within forty-eight hours; the rest of the subjects died in from four to twenty-eight days after receiving the injury. The Duc de Berri lived eight hours after a wound of the left ventricle; and Watson saw a case in which a man ran eighteen yards after receiving such a wound. Those who are interested as to further discussion of this subject I may refer to the paper of Mesbrenier in the *Annals d'Hygiene*, 1879, vol. i, p. 257.

Still more recently we find Morgan in the *Edinburgh Medical Journal* for December, 1897, recording the case of a boy aged five years who fell upon a needle so placed in his shirt that the fall forced the steel into the

heart so that it moved to and fro synchronously with the heart. The child was chloroformed and the needle withdrawn, recovery taking place.

Another case is that reported by Prior in *The Lancet* of October 9, 1897, of a man aged forty-three years, an epileptic in an asylum. The attendant in charge in the sick-room observed the patient doing something unusual, and on removing the bedclothes was astonished to find an iron pin projecting from the chest in the region of the heart. The exact situation was one and three-fourths inches below and one inch internal to the left nipple. The pin was directed slightly upwards and inwards. It moved vigorously with every beat of the heart and traveled about an inch upwards and downwards every time. On examination the pin was felt to be firmly embedded in the wall of the heart, which was felt tugging at the inner end of the pin. Removal of this peculiar foreign body was not undertaken without some misgivings as to the result. The pin was rotated and gently withdrawn; the part within the chest measured three inches, making a total length of four inches of three-tenths inch iron wire. The patient was collapsed; he had a small, feeble pulse, 64 per minute; respiration was shallow, 24 per minute; and the skin was cold. There was practically no hemorrhage from the wound. No external hemorrhage appeared subsequently to this, and there were no signs of effusion of blood or serum into the pericardium. The patient kept his eyes closed. He did not resist an examination of the pupils, which were dilated and reacted but slightly to light. When spoken to he would not answer. Prior thought he was conscious of all that was said, and subsequent events made this almost certain. The wound was dressed antiseptically, and there was no visible suppuration at any time. On the day following the infliction of the wound there was some subcutaneous emphysema round the wound. The physical signs of pneumothorax appeared, but this and the emphysema disappeared again in twenty-four hours.

The following case of heart wound has been reported by Rehn: A young man was brought to hospital, having received an injury from a knife in the left side of the chest. There was much dyspnea and hemorrhage. As the pericardium became dilated the patient's state became worse and worse. The wound in the fourth intercostal space was then opened up, and after resection of the



fifth rib the pericardium was incised. A wound one and a half centimeters in length was then found in the right ventricle. This Dr. Rehn closed by three sutures and packed the pericardial cavity with iodoform gauze. After the operation the pulse and respiration immediately improved, and although the patient's convalescence was retarded by suppurative pleuritis he made in the end a complete recovery.

Finally, the following personal experience is of interest, although the results from the standpoint of relief of cardiac difficulty were not permanent. A boy nineteen years of age, during the course of a severe attack of articular rheumatism, developed great pain over the præcordium, and in the course of forty-eight hours marked interference with normal heart action, dyspnea, cyanosis, and great præcordial discomfort. He had had since early childhood severe attacks of rheumatism at varying intervals, and as a result of these attacks had developed a marked mitral regurgitant murmur. The symptoms of cardiac oppression increased in intensity, but a physical examination of the chest failed to reveal any trouble with the lungs, although there was a great increase in the area of præcordial dulness. Under these circumstances it was evident that the extension of cardiac dulness in every direction could only be due to two causes—either a pericardial effusion or marked cardiac dilatation. The symptoms increased in severity, and became so aggravated that it was evident the patient would die in a very short time if some active interference was not resorted to. Under these circumstances I asked my colleague, Dr. J. C. Wilson, to see the case with me in consultation, and we both decided that we were justified in resorting to paracentesis pericardii, with the hope that by withdrawing pericardial fluid we might relieve the labored action of the heart. After careful percussion and deliberate outlining of the areas of cardiac dulness, I inserted a trocar and cannula attached to an aspirating flask into the fifth interspace immediately to the left edge of the sternum. The impulse of the heart was immediately transmitted along the cannula as soon as it entered the chest, and on turning the stop-cock the aspirator withdrew several drachms of blood. This sign, combined with the active movements of the cannula, which was evidently engaged in the heart muscle, apparently indicated that the heart had been punctured, and fearing that serious results might follow the instrument was at

once withdrawn. Instead of the patient becoming worse, however, he immediately improved and for a number of hours seemed much relieved, perhaps because by the withdrawal of the blood we had relieved auricular or ventricular distention and the wound closing had prevented hemorrhage into the pericardial sac. On the following day, the symptoms having returned in all their severity, it was determined to once more attempt to withdraw fluid from the pericardial sac, in which it seemed certain that fluid existed. Another attempt, however, was equally barren of results so far as fluid was concerned, the cardiac cavity being tapped a second time and pure blood withdrawn as before. This second wound of the heart also resulted in temporary amelioration of the case, the patient dying about thirty-six hours afterwards from a gradually increasing cardiac failure.

By far the most recent and important study of this question, however, has been made by Bode (*Beiträge zur Klinische Chirurgie*, Band xix, Heft 1). This research showed that large wounds of the ventricle which impaired its action soon resulted in death, for this reason, or because of hemorrhage into the pericardium; whereas in the case of small wounds of the ventricle the hemorrhage gradually ceased and finally stopped spontaneously, the time of repair or arrest of the hemorrhage being quite short. He also found that small wounds of the left ventricle bled much less freely than similar wounds in the other parts of the heart, evidently because of the greater muscular thickness of its walls which by the arrangement of its fibers mechanically prevents hemorrhage and aids clotting. That this protective process takes place is proved by the cases of temporary recovery followed by sudden death, when severe strain has displaced the plugging clot, which have been cited in this paper.

In a research carried out by the writer, the results of which were published in the *Medical and Surgical Reporter* in 1889, these last named facts were frequently noted, and a recent study of the hearts of the dogs used at that time shows very well that this plugging of a cardiac wound by a clot often occurs and thereby saves life. It also showed that an injury to the heart muscle, unless of great extent, did not of itself necessarily or even generally cause death, and that in a number of cases where death did result from a stab wound of the heart this result did not arise from the cardiac injury directly, but

either from the loss of blood through the wound in the pericardium and heart wall or much more commonly from the pressure exercised upon the surface of the heart by the accumulation of fluid in the pericardial sac. The conclusions to be reached, therefore, seem to be as follows so far as actual cardiac wounds are concerned: There are therefore several ways in which death may occur in cases of heart wounds: (a) By hemorrhage which results in loss of blood or great pericardial pressure from the cardiac cavities; (b) by hemorrhage from the heart muscle itself, which is unusually slight; (c) by a wound of the coronary artery; (d) by injury to the center which Kronecker and Schmey have localized in the dog's heart—a spot above the lower limit of the upper third of the ventricular septum, which, when it is injured, brings the heart to a standstill. This is the so-called coordinating center.

We may conclude therefore that the lethal result of a heart wound depends largely upon the rapidity with which a hemostatic clot is formed in the opening, and that injury of the heart muscle in itself is rarely the cause of death. Only when the coordinating centers are injured or there is profuse hemorrhage into the pericardial sac, which produces cardiac failure by pressure, does death occur, unless the wound is so large as to permit the blood to escape externally or into the thoracic cavity. The opening made by a small aspirating cannula is never large enough to produce hemorrhage from the ventricle.

Heart wounds heal by the formation of hemorrhagic exudate, which plugs the leading opening and permits repair.

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#### THE POST-OPERATIVE TREATMENT OF SURGICAL CASES.

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(Continued from page 22.)

When an operation is performed, as it frequently is, on patients who are suffering from an acute or chronic urethritis, the prolonged exposure of the patient on the table and the administration of required alcoholic stimulants will often light up an acute inflammatory process, which will result in complete obstruction to the urinary outflow—a condition known as retention from inflammatory stricture. Any part of the urethral tract may become sufficiently involved in this

process to produce this complication, but the existence of inflammation in the deep urethra, a severe posterior urethritis, is the most fruitful cause of the trouble. The area of inflammation is not, however, always limited to the urethra itself, and combined with a specific urethritis there may be an associated acute or recurring prostatitis, from extension of the urethral infection to the prostate gland. In either case the retention is primarily purely mechanical; the inflammatory process becomes so marked, the urethral mucous membrane, or the prostate, or both, become so inflamed and swollen as to impinge upon the lumen of the urethra, and in a short time the vesical outlet is completely blocked. It must not be overlooked, however, that the element of spasm, from the involvement of the peripheral ends of the sensory nerves of the urethra in the inflammatory process, and the subsequent reflex disturbance, enters largely as a causal factor in the inhibition of the vesical function. The diagnosis of the exact condition causing the retention from that of a simple spasmodic trouble will be readily determined by inquiring into the recent history of the patient, the existence of a free discharge, the associated febrile disturbance, and the pain along the course of the urethra. Digital exploration of the rectum will determine the existence or non-existence of prostatic tenderness and swelling.

The treatment will consist of such means as are mild and gentle in character. If the character of the operation permit, the patient is placed in a hot general bath, or a hot sitz bath, for fifteen minutes, and is given a hot lemonade. In lieu of the general bath, or sitz bath, if these be not permissible, the patient may be wrapped in a blanket wrung out in hot water, or the local use of hot fomentations to the perineum and hypogastrium may be substituted. At the same time it is well to administer an initial dose of morphine and atropine by subcutaneous injection. This failing, the rectum is irrigated by means of a fountain syringe and rectal irrigating pipe having an opening for the return flow, with several quarts of hot saline solution, the nozzle of the tube being directed anteriorly against the prostate to get the full local effect on the congested gland and neighboring area. At the same time two or three leeches should be placed on the perineum if the prostate gland is much inflamed. These means still failing to relieve the retention after the lapse of two or three hours, a small soft-

rubber catheter is passed after a preliminary mild antiseptic irrigation of the anterior urethra. A No. 15 F Jacques' catheter having previously been sterilized in the Guyon box, or in emergency by boiling, is attached to an irrigating bottle containing half a liter of potassium permanganate solution 1:4000. The bottle is raised one meter above the patient, and while the solution continues to flow through the tube and catheter, the latter is introduced into the urethra until the eye of the instrument is opposite the bulb. The irrigation is here completed and washes out all the purulent contents from the anterior urethra. Occasionally, while this is being done, the parts become so relaxed that the patient will void his urine while the irrigation is in progress; but if not, the irrigating bottle and tube are disconnected and the catheter is passed into the bladder—usually without any great difficulty. Owing to the hypersensitiveness of the urethra from the inflammation that is present, the procedure may at times be accompanied by such unbearable pain as to require the induction of light anesthesia with ether or bromide of ethyl before the catheter is introduced. This is, however, necessary only in rare instances. The catheterization is repeated at intervals of four hours, providing the bladder does not empty itself spontaneously; but before catheterizing, the milder means mentioned should be tried each time faithfully, to see whether they will not suffice. At intervals suppositories of belladonna and opium are administered for their antiphlogistic and relaxing effects, and if the fever runs high and local tenderness is especially severe, rectal injections of ice-water will give relief. The bowels are opened freely by salines, the urine is rendered bland by copaiba and sandalwood oil, and the kidneys flushed with diluent drinks; a restricted diet, principally of milk, is strenuously adhered to, and the recumbent posture is maintained until the inflammation is controlled and there is no longer danger of retention.

When retention comes on as a consequence of organic stricture, a different phase of the problem presents itself. The patient, usually an adult male, having for some time previous to the operation experienced some difficulty in urination, marked by frequency in micturition, dribbling, the voiding of a small stream, and an associated gleety discharge, suddenly finds himself, at the completion of an operation, unable to pass his water. Here, too, as in the case of retention due to acute inflammatory engorgement of the urethral

tract, the exposure and environments of the operation, the chilling effects of the anesthetic, and possibly the necessary administration of alcoholic stimulants, have much to do with precipitating the sudden obstruction to the outflow of urine. Organic stricture, being the cicatricial result of a chronic interstitial inflammation, is always accompanied by a certain degree of this inflammation, more especially in the mucous membrane immediately back of the stricture, where the pouching of the urethra as the stricture grows smaller, and the erosion of the mucous membrane from the decomposition of a few drops of retained urine, favor the rekindling of an active inflammatory process in the stricture band itself. Accordingly, when such pernicious influences are brought to bear upon this condition, an inflammation not only of the urethra posterior to the stricture and the tissues tributary to it may result, but also an inflammatory infiltration of the fibrous ring itself, with a tendency to obliteration of the entire lumen of the canal.

The strictures thus causing retention in the great majority of cases are situated in the bulbo-membranous portion of the urethra, are generally multiple, particularly if the primary cause be gonorrheal infection, and their elasticity or density is commensurate with the duration and degree of the pathological process. This can, to a certain extent, be determined from the history previously elicited from the patient.

The treatment of the condition will begin immediately the retention is discovered. If there are no contraindications, the patient is placed in a hot general bath or a sitz bath; or, towels are wrung out in hot water and wrapped about his thighs and loins, the bed being properly protected. At the same time he is given a full dose of morphine sulphate (one-third grain) hypodermically or by suppository, or the same amount of the acetate by mouth. If the bladder is unable to expel its contents immediately after the bath or hot applications, instrumentation will be indicated. These strictures are necessarily impenetrable to soft catheters, sounds, and cutting instruments alike, and the instrument of choice for the relief of the condition will be the whalebone filiform bougie. The attempt at passing a catheter or sound is absolutely contraindicated, as it will only tend to increase the difficulty in relieving the bladder by the added urethral spasm which such an unsuccessful maneuver would induce. The filiforms should be thin and strong, those

usually purchased in the shops being entirely too thick to render the best service, and it is advisable in preparing them to scrape them with some sharp instrument in order to make a slender neck with a small olive point, the best size instruments being such as will permit the passing of the smallest size Gouley catheter. A dozen filiforms are sterilized, as were the soft instruments, by trioxymethylene in the metal box, after they have received the preliminary scrubbing with soap and water, and are soaked in bichloride solution 1:1000. The region about the fossa navicularis is disinfected as before. If there is any urethral discharge, the urethra is first flushed anterior to the stricture with hot boric acid solution fifteen grains to the ounce, or potassium permanganate solution 1:5000, by means of an irrigating bag and a short urethral nozzle. With a cleansed piston syringe, a drachm of the sterile lubricant is injected into the urethra and a filiform is passed down to the stricture. If after patient and gentle effort it refuses to pass the stricture, another is passed alongside the first, is likewise rotated and pushed, and still another until the shelving band is completely occupied with filiforms, and by successive efforts one is finally pushed through the opening. All organic strictures are permeable to filiforms, and painstaking effort will surely find the minutest opening. It is impossible to state definitely just what number of filiforms will be required before this is accomplished, but the average number found necessary in the writer's hands is about eight. The moment the instrument passes the stricture, the condition is conquered, and the remaining filiforms are withdrawn.

All will now depend upon the condition of the patient, and the character of the stricture, whether the bladder shall be emptied at once or whether the filiform is to be tied *in situ* and the urine allowed to trickle slowly by the instrument. If the patient has undergone a severe operation and is very weak, or if the stricture be highly resilient, no further effort is made, capillary drainage being depended upon to relieve the retention. If, however, the patient's strength permit, and the stricture be elastic, the smallest size Gouley metal catheter, which has been sterilized by boiling, is threaded over the filiform until it meets the stricture, when the filiform is slightly withdrawn, and *both* instruments are pushed into the bladder together. The metal instrument is withdrawn, and the two larger Gouley catheters are successively

passed in a similar manner, immediately followed by a Jacques' catheter, by which the bladder is completely emptied. If for various reasons the deep stricture is not considered amenable to further dilatation at once, the rubber catheter is tied in for three days, urethral irrigation alongside the instrument from a high pressure (nine feet) being practised daily, after which the various methods for curing the stricture are made use of. If, however, moderate dilatation can be carried out at once upon the withdrawal of the soft-rubber instrument, several flexible loaded bougies, as advocated by Professor Hearn, are introduced in ascending sizes until the stricture is dilated to No. 18 of the French scale, which will prevent any further danger of retention for the time being and will pave the way for gradual dilatation with steel instruments during the course of the convalescence.

If the resiliency of the stricture prevents passing the Gouley instrument at once, or the weakness of the patient demands temporizing measures, the filiform is tied in and allowed to remain for twenty-four hours. The first drachm of urine passed in this way from the distended viscus will give untold relief to the patient, and he will rest in comparative comfort as drop after drop is drained off and the tension of the bladder is relieved. At the end of the first day it is usually possible to pass the Gouley catheter over the filiform, even though the stricture be very resilient. If the density of the band makes the passage of the metal instrument difficult or impossible, the filiform is allowed to remain in the urethra for several days longer, daily urethral irrigations and the internal administration of boric acid and salol in ten-grain doses preventing the occurrence of any septic process; and when the progress of recovery has so far advanced that the shock and depression of the original operation will no longer be considered a menace to further interference, suitable means are instituted for the relief of the stricture itself according to the indications of the case—in general, internal urethrotomy if the fibrous stricture be anterior to the bulb, external urethrotomy (Syme's operation) if it be behind the bulb and permeable to the grooved or tunneled staff, perineal section if it be impermeable to the guide.

Occasionally retention is met with after operation in patients who suffer from stricture resulting from a former severe injury to the perineum, and it will be most difficult, and at times impossible, to pass even the

smallest filiform through the hard, nodular, cartilaginous band, which is now essentially a traumatic stricture. It devolves upon the surgeon, however, to relieve the distended viscus without delay, and the cardinal resort will be found in suprapubic aspiration. The region above the pubes is shaved and disinfected, the distended bladder is outlined by percussion and palpation with cleansed hands, a puncture is made in the skin in the median line an inch above the symphysis pubis, and a sterile, medium-size aspirating needle is plunged directly backward through this puncture into the bladder—entrance into its cavity being indicated by the lessened resistance to the instrument. The bladder is emptied as completely as possible and the needle is withdrawn quickly so as to prevent the urine from escaping into the path of the needle and causing infection, the punctured wound in the skin being sealed with sterile cotton and collodion. When an aspirating apparatus is not at hand, a small sterile trocar will answer the purpose, a large-sized instrument being avoided, as there is too much danger from leakage of urine into the prevesical fat, with the consequent formation of an abscess. In the absence of either of these appliances, perineal section will be performed, making use of the staff devised by Professor Horwitz, which instrument is brought into contact with the stricture, and with a filiform as a guide will determine the exact point for the incision; a silver or soft-rubber catheter is then passed into the bladder and tied in position for three or four days, after which bougies will be used; or if complications exist which prevent the use of the staff, and there is great urgency from the retention, Cock's operation of tapping the urethra at the apex of the prostate behind the stricture will be indicated, and a drainage tube temporarily fastened in the perineal wound, the stricture itself receiving attention in due time.

After any of these operative methods, and before they are practised if possible, the internal administration of boric acid and salol, combined with the frequent local irrigations with mild antiseptic solutions, will be most efficient means of preventing urethral fever by rendering the urine antiseptic and keeping the urinary outlet sweet and clean.

Should retention come on later in the course of recovery, or during convalescence, from the closure of a slowly contracting or recurring stricture, the condition will be met with the same means as set forth above.

Retention of urine from organic stricture in women after operation is such a rare occurrence that it does not call for a detailed line of treatment at this time. Unlike the spasmodic retention which occurs so frequently in women after operation and which is easily relieved by the sterile glass catheter when milder means fail, the cases are exceptional in which the urethral caliber is so encroached upon by fibrous contraction as to seriously interfere with the function of micturition. When the condition does occur, the insertion of a filiform, followed by dilatation with short, straight steel sounds, or if resilient, by use of the urethrotome, will not only relieve the retention, but will usually prevent further recurrence from this cause.

(To be concluded.)

#### PRIMARY TUBERCULOSIS OF THE RECTUM, WITH REPORT OF CASES.

STRAUS publishes an interesting article on this subject in *Mathews' Quarterly Medical Journal* for January, 1898. He reaches the following conclusions:

1. That primary tuberculosis of the rectum is not so infrequent as some of the leading authorities have taught.
2. That it is a surgical disease as much as is appendicitis.
3. That it is not and cannot be diagnosed by the clinical symptoms as given by the various writers on diseases of the rectum.
4. That the only scientific and correct way of making a diagnosis is by the use of the microscope.
5. That by thorough curettement or excision, or both together, with cautery, it is not only cured but remains cured much more often than is dreamed of; certainly more often than the teaching of the authorities would have us believe.
6. That some of the apparently most hopeless cases are cured by repeated operations.
7. That all suspicious cases should be submitted for microscopical examination, for the reason that it is the only scientific method of reaching a diagnosis.
8. That local treatment is not equal to curing these cases; permanent results are to be had by a radical destruction of diseased tissue or the habitat of the tubercle bacilli.
9. That these cases are and have been cured, and that sufficient time has elapsed for us to conclude that they will remain cured.
10. That early and repeated operations if need be are imperative, if these cases are to be permanently cured.

# The Therapeutic Gazette

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## Leading Articles.

### THE USE OF HYPODERMIC INJECTIONS OF SALT SOLUTIONS IN UREMIC ECLAMPSIA.

During the past eighteen months the THERAPEUTIC GAZETTE has contained on a number of occasions original, editorial and progress items dealing with this and kindred subjects. With practically no exceptions the reports made by English, European and American physicians in regard to the results produced by hypodermoclysis have been most favorable, particularly when we take into consideration that many of the conditions calling for this plan of treatment are exceedingly grave and followed ordinarily in the great majority of instances by death. It is not to be supposed that the hypodermic injection of salt solution in any quantity can cause kidneys hopelessly diseased to carry out their normal functions, nor that it can overcome the results of profound septic poisoning; but it is a fact that in a certain proportion of cases this method of treatment so aids the ordinary emunctories of the body, partially or temporarily disabled by disease, in carrying out their function with sufficient

completeness as to permit recovery to take place. The possibility of applying this treatment to a large variety of diseases has not failed to impress itself upon the professional mind, and we now read of cases of puerperal sepsis, uremia, septic poisoning, and even instances of infectious diseases, such as scarlet fever, in which hypodermoclysis has brought about the most happy results.

In the *Australian Medical Gazette* of September 20, 1897, Surgeon-Major Eakins records a case of uremic eclampsia in which the patient, a primipara of twenty-eight years, recovered after treatment by the hypodermic injection of salt solution, although she was unconscious five days. When first seen she was in violent convulsions. After cleansing his hands and also the vulva and vagina of the patient with ethereal antiseptic soap, he easily dilated the cervix and extracted a dead male fetus by the feet, and this was followed by a live female infant which shortly afterward died. The thighs were now quickly cleansed with the same soap, a cannula inserted under the skin of the right thigh, and a pint of saline solution was allowed to flow in so that it was under the skin in about ten minutes. The cannula was then removed and introduced into the front of the left thigh and another pint given. Shortly after this Dr. Eakins administered one-third of a grain of pilocarpine hypodermically to aid in producing a sweat. The patient was wrapped in hot blankets and also received some digitalin and strychnine to prevent cardiac depression. A number of hours later, as no urine had been passed and catheterization proved the bladder to be empty, and the bowels had not acted, another pint of saline solution was given. Nourishment was also afforded her in the form of Mosquera beef jelly in solution. This was given by the rectum on a number of occasions. Four days after the patient was first seen she was able to take some milk and water by the mouth, but did not answer when spoken to, and passed but four ounces of urine. After this, however, she made a good recovery. Dr. Eakins believes, and we agree with him, that in the treatment of this case he took advantage of every means to save his patient: First, the administration of chloroform and her rapid delivery, thus emptying the uterus of its contents; second, allowing of free bleeding from the uterus, thus obviating blood-letting, which he believes is very useful either with or without hypodermoclysis; third, the diluting of the blood and its con-

tained poisons by the hypodermic injection of fluid on a number of occasions over and above those already mentioned; fourth, the promotion of elimination by the skin and bowels, and the use of warm water irrigation by the bowel to aid in producing a movement and to wash out poisons. Dr. Eakins concludes his article by emphasizing his firm belief that the hypodermic injection of saline fluid is much to be preferred to the intravenous method.

Another article by Dr. Bacon in the October number of *Medicine* also recommends the use of normal saline solutions in general obstetric practise, not only for the relief of toxemia producing eclampsia, but also in cases of postpartum hemorrhage or hemorrhage occurring at other times. If it seems inadvisable to use hypodermoclysis in a case of hemorrhage, the saline solution may be introduced into the body by intravenous injection, by injection into the peritoneal cavity, or, if the case is not pressing and slow absorption is desired, by high injections into the bowel, after the alimentary tract has been emptied of fecal matter by an ordinary enema.

Without doubt the best means of using saline solution in any one of these ways is by means of a hydrostatic or fountain syringe, or better still by the use of the ordinary glass irrigating apparatus commonly used for surgical practise. As the preparation of the normal salt solution requires a considerable amount of time and a careful measurement of the quantity of salt, we have recently suggested that a saturated solution containing normal saline ingredients, representing as nearly as possible the blood constituents, should be prepared, and this solution, by the proper addition of pure water which has been sterilized by boiling, can then be speedily employed.

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*THE USE OF PERMANGANATE OF POTASSIUM IN OPIUM POISONING.*

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The interesting contribution concerning the value of permanganate of potassium in opium poisoning which was made by Dr. Thornton and Dr. Holder in the last number of the *THERAPEUTIC GAZETTE* seems to us to settle once and for all the heretofore somewhat doubtful question as to whether the permanganate when given hypodermically exercises any true antidotal influence. Shortly after the suggestion was made that the permanganate of potassium should be given

hypodermically in cases suffering from opium poisoning, we called attention in the editorial columns of the *GAZETTE* to the fact that on theoretical grounds such an administration of the remedy must be absolutely without value, except in so far that the pain of the injection might help to arouse the patient and by keeping him awake enable him to breathe voluntarily, even when the drug had so depressed his respiratory center as to seriously interfere with ordinary involuntary respiration. We pointed out at that time that permanganate of potassium is a substance which when it comes in contact with organic matter very rapidly changes, and that it was impossible for any of the drug, as the permanganate of potassium, to be absorbed into the bloodstream and to oxidize the morphine in the blood or tissues.

These theoretical objections are proved by this research to be correct. It is true that a study of contemporaneous medical literature will discover quite a large number of instances in which physicians have reported cases of opium poisoning which they believe to have been relieved by this form of hypodermic medication. A careful consideration of these reports, however, indicates in almost every instance there were good reasons for patients recovering aside from any effect which the permanganate might exercise. Thus we find in the London *Lancet* of October 30 the report of the case of a man aged thirty-five, who took two tablespoonfuls of laudanum by mistake for "black draught." When seen by the physician four hours after he had taken the poison he was asleep, but was readily aroused, and was given some strong coffee and a hypodermic injection of three grains of caffeine. Later on two more caffeine injections were administered. After this permanganate of potassium was used by the stomach, and to make a long story short, the patient speedily recovered. This is an instance, we think, in which the permanganate of potassium probably produced very little if any effect, and the caffeine was entirely responsible for the good results by reason of the stimulant effect upon the respiratory center. Further, the dose of laudanum was hardly large enough to be fatal in its effects. The temporary delay in the improvement in the man's condition after the first caffeine injection was due to the fact that the drug was not immediately absorbed, and we firmly believe that had no permanganate of potassium been administered in this case an equally rapid recovery would have been obtained.

*THE PRODUCTION OF ANESTHESIA BY  
SCHLEICH'S MIXTURES.*

The medical profession are now thoroughly familiar with the suggestions made some years ago by Schleich, that weak solutions of cocaine, morphine and sodium chloride should be used hypodermically for the production of local anesthesia prior to minor surgical operations, the advantages of this method being the avoidance of any danger from poisoning by cocaine or morphine, and the effectual benumbing of the sensory nerves in the part which is to be operated upon. Within the last few months Schleich has published the results of his studies upon the anesthetics which are commonly employed by inhalation for the purpose of preventing pain in surgical operations, and he has found that by mixing ether or chloroform with petroleum ether or benzine it is possible to modify some of their physical characteristics and also to alter in some degree their physiological action. The rapidity with which any drug can produce anesthesia by being inhaled is governed in part by its boiling or most rapid evaporation point. The higher this point the greater is its rapidity of action and the more prolonged its effects. Thus we find that in the case of chloroform, the evaporation point of which is 65° C., anesthesia speedily follows its administration in small amounts and lasts for some time. Once in the system it is eliminated slowly because the bodily heat is less than its point of most rapid evaporation. On the other hand, sulphuric ether boils at 34° C., and for this reason acts more slowly and more transiently, because for every breath of ether vapor which is inhaled an equal quantity is exhaled, since its evaporation point is less than that of the body.

Schleich has found that if chloroform, ether, and petroleum ether are mixed they form a fluid the evaporation point of which varies from 38° to 42°, according to the proportions of the ingredients. By the use of such a fluid for anesthetic purposes we avoid the over-effects of chloroform when used alone, the necessity of using excessive amounts of ether, and the patient speedily returns to consciousness after the inhalation ceases. Further, disagreeable after-effects are not so common or severe. These so-called mixtures of Schleich may be made in three ways. No. 1 is composed of:

- R Chloroform, 45 parts;  
Petroleum ether, 15 parts;  
Sulphuric ether, 180 parts.

Its boiling point is 38° C., and as the lower the boiling point the more transient the anesthesia, it is to be employed in brief operative procedures of about twenty minutes' duration. Usually about one ounce or thirty grammes will be required, given best on an ordinary ether cone made of cardboard and a towel. About three ounces will be needed for the period of one hour, in severe operations. If a more prolonged and powerful effect is needed, then one of the following mixtures is used, No. 3 being naturally more powerful than No. 2, because its boiling point is higher. The formula for No. 2 is:

- R Chloroform, 45 parts;  
Petroleum ether, 15 parts;  
Sulphuric ether, 150 parts.

The boiling point of this mixture is 40° C.  
For No. 3:

- R Chloroform, 30 parts;  
Petroleum ether, 15 parts;  
Sulphuric ether, 80 parts.

The boiling point of this mixture is 42° C.

The petroleum ether is said to have no deleterious effects and seems to modify the effect of the chloroform and dilute the sulphuric ether without altering its general influence. It is to be remembered that only petroleum ether which boils at 60° to 65° C. is to be used. The ordinary petroleum ether, or benzine of the drug stores, which boils at 55° C., is not suitable. Aside from the disagreeable odor of these mixtures, which is a disadvantage, they are asserted to cause less cyanosis, less mucus or other disagreeable effects than any anesthetic known, and to be safer in every way than either ether or chloroform; and they have been tried quite largely with success in this country by a number of surgeons, among whom may be mentioned Dr. Meyer and Dr. Maduro, of New York.

*THE TREATMENT OF GONORRHEA.*

Janet in the *Revue de Thérapeutique* of December 1, 1897, makes a further contribution on this subject. It is extremely interesting because the publication of his first articles has been followed by so many conflicting reports as to the value of the methods he advised that the general practitioner is entirely at a loss to know whether or not these methods are of the faintest service.

Janet states that while we are waiting for some practical results from the sero-therapy which has been investigated by Wassermann, Christmas, Nicolaysen, and Schaeffer, we are



compelled to resort to the most efficient form of antiseptic treatment. This the author holds is by means of copious irrigations with potassium permanganate. Since 1892, when the author's first paper appeared, a paper based on his first cases, he has not written on the subject. His present communication is based on a very much wider experience.

Janet believes that the greatest service he has rendered has been to convince the profession of the folly of the pernicious practise of letting a gonorrhea run. It is to this practise he attributes the vast majority of strictures, cases of sterility, prostatitis, orchitis, rheumatic atrophies, and ankylosis. Efforts at abortive treatment used to be exceptional. In the last year Janet has not seen three cases in which he did not attempt abortion of the disease. In the last eight years he states that he has not had a single case of stricture in patients whom he has seen from the first. He has only seen three cases of orchitis, all insignificant, and has never had an instance of rheumatism, tenosynovitis, conjunctivitis, or any of the other complications of gonorrhea.

Guided by his long experience the author no longer claims that permanganate will necessarily result in rapid cure. He has had to continue his application for two or three months and has given forty and even seventy lavages. He states that at the end of the treatment the urethra will be in as good a state as it was in the beginning, and through the entire course of the treatment the patient is not exposed to any of the ordinary complications of gonorrhea. These prolonged treatments he states are not necessary in more than twenty per cent. of cases, and are due to the fact that extra-urethral and inaccessible gonorrheal foci are established which should be carefully searched for.

With the various agents which have been recommended recently the writer has had but little experience, but with some of them, particularly with argonin, he has succeeded in cases which did not yield to permanganate of potassium.

The armamentarium required for the permanganate treatment is as follows: A quart irrigating bag or vessel provided with a rubber tube nine feet long, on which is placed a stop-cock and in the end of which is fitted a cannula of glass or hard rubber with a blunt conical end; and a method of suspension by means of which the irrigating bag can be drawn to varying heights. This is best done by hanging it on a pulley over the

wheel of which is passed a cord attached to the bag; a urethral syringe to be used for cocaine; a basin; a one-per-cent. solution of potassium permanganate and a one-fourth-per-cent. solution of cocaine; warm boiled water; a graduate for the purpose of measuring solutions; a bed, table or chair on which the patient can either lie down or sit up. It is perfectly possible to practise these irrigations with the patient standing against a wall or supported by a piece of furniture. It must be remembered, however, that on the first irrigation patients often become faint.

Abortive treatment of gonorrhea should be attempted not only from the very first hours of inflammation, but during the first few days, unless the phlegmonous symptoms are extremely severe. The question should be decided rather by the severity of inflammation than by the number of days the disease has lasted. As a rule the treatment of beginning urethritis should be confined to the anterior urethra, which alone is infected; none the less the second urine should always be watched for shreds, and should these appear the complete lavage should be practised.

When the anterior urethra alone is to be washed out the bag is elevated not more than one and a half feet above the level of the penis; the urethra is then forcibly distended, pressing the nozzle into the meatus. This process is repeated until all of the solution is employed, the surgeon occasionally during the course of the treatment clamping the tube of the irrigator and gently milking the urethra from the perineum forward. These irrigations are made twice a day with a quart of 1:2000 solution. If the washings are made rapidly, the cannula having a fairly wide aperture, the weaker solutions are not required. If the washings are made slowly they excite a violent reaction, causing marked congestion; the strength of solution should be lessened to 1:3000 or even 1:4000, increasing to 1:2000 as soon as practicable. After three or four days but one washing a day is administered, but this is so arranged that after the evening irrigation the next one is practised about noon the next day, the following one in the early morning, and thereafter in the morning. These washings are in strength 1:1500, and toward the eighth or ninth day even 1:1000. In cases which do not present traces of inflammation upon the ninth day, the discharge being mucous, almost transparent, the next irrigation should follow

thirty-six hours later and the next forty-eight hours after that. If there is no discharge or a very slight one containing no gonococci, the washings can be omitted, the patient being cautioned to come back for treatment at the slightest sign of return of discharge or unpleasant sensations. If there is recurrence the treatment is resumed, one washing a day, from 1:2000 to 1:1000 being administered, careful search being made for signs of posterior urethritis.

If at any time during treatment the second urine passed shows admixture of pus, the entire urethra must be washed out. To accomplish this the anterior urethra is injected with 1:400 solution of cocaine. This is held in for a minute. The anterior urethra is then washed out with a pint of permanganate solution. The cannula is then pressed firmly into the meatus and the bag is elevated to the height of three and a half feet. The patient is then told to make an effort to urinate, when the liquid will flow into the bladder. The spasmodic contractions which sometimes occur are signs for the momentary withdrawal of the nozzle from the meatus. This posterior irrigation at first may be unsuccessful; sometimes it is only after three or four days that the patient is able to allow the fluid to pass into the bladder. It is occasionally necessary to repeat the cocaine injection during the course of the treatment before the sphincters of the bladder will yield. With gentleness and patience the penetration of the liquid into the bladder can be accomplished in practically every case.

For total irrigation the beginning strength of the solution should be 1:4000, unless patients have been habituated to anterior irrigation. In the latter case, or when the patient is not particularly sensitive, the strength of the solution is the same as that used in the anterior urethra.

Great importance attaches to the time consumed in irrigation. With solutions of equal strength, a washing which occupies six minutes is twice as energetic as one that occupies three. When the washing is practised early, when the urethral inflammation has disappeared, and when very slight inflammatory reaction is excited, patients can be entrusted with the treatment.

Acute and hyperacute gonorrhea will only be encountered in cases which have not been treated by irrigation. Even in those cases Janet holds that an attempt should be made to suppress the discharge by copious flushings. When the anterior urethra alone is

involved success is almost certain, though the ultimate cure is likely to be slow. The first injection should be 1:4000, practised twice a day. These are usually efficacious in promptly alleviating the inflammatory symptoms. When the posterior urethra is infected the treatment is equally satisfactory, provided complete irrigations are possible under the use of cocaine. If it is impossible to practise these irrigations, and this is demonstrated by repeated careful trials, it may be advisable to allow the case to run on until from its self-limiting nature the severe symptoms subside, or to pass a fine Nelaton catheter into the bladder, fill it with weak permanganate solution, and allow the patient to pass it out voluntarily. This should only be practised when patients can be confined to bed, and would be particularly indicated when rheumatism or other general complications are threatened.

The use of sandal is condemned absolutely, Janet holding that he has seen two instances of orchitis develop from this drug. The morning drop is likely to persist for a long time after other symptoms have disappeared.

In the treatment of subacute and chronic gonorrhea permanganate irrigations give results as satisfactory as are the rule when they are adopted in the early stages of acute disease. Satisfactory results are obtained in cases of simple chronic gonorrhea without profound alteration of the mucous membrane, such as is found after repeated attacks or after a fresh infection of old gleet. In a profoundly chronic case accompanied by extensive pathological alterations and yielding a discharge that contains gonococci, results are very far from satisfactory. The treatment of the chronic or subacute gonorrheal discharge consists in administering a series of nine to twelve lavages of permanganate. Sometimes more are required. The irrigation should involve the entire urethra. It should begin with a strength of 1:4000 and this should be increased rapidly to 1:1000, the irrigations always being preceded by an injection of cocaine 1:400. The injections are lessened in number as in the case of acute gonorrhea. It is infinitely better to continue irrigations longer than absolutely necessary, than to allow a discharge to develop again which requires a new series. Sometimes this requires a continuance of irrigations for weeks or months. The most valuable guiding sign as to the possibility of stopping treatment without recurrence of discharge is the disappearance of the gonococci; after this the disappearance of pus and of the

yellow morning drop; finally, the cessation of tickling, itching sensations in the urethra. The shreds in the urine are of little value. The persistence of a mucous or muco-purulent, colorless drop should not prevent the surgeon from stopping treatment.

Before discharging the patient the physician should always endeavor to demonstrate positively that cure is complete. This is especially useful as a means of distinguishing between the relapse of an original inflammatory infection and a fresh gonorrheal infection due to fresh exposure, often with a wife who has been originally infected by the husband and has not been cured. The proof is furnished by causing the urine to become irritating by drinking beer, for instance, or by the results consequent on the first seminal discharge following the cessation of irrigations. The proof afforded by allowing the patient to drink beer should not be attempted for eight days, since recurrence sometimes occurs spontaneously on the seventh day, and if excited by drink is likely to be more severe and more difficult to cure. The patient may take three or four glasses after dinner or even more, and should present himself for examination on the next day and the day following. If no pollutions occur for sixteen days the patient may be allowed to practise intercourse wearing a cover. Provided this is not followed by recurrence of discharge the patient can be pronounced cured. These proofs are only valuable in showing the absence of gonococci after the irrigation treatment.

After a patient is once cured he should be warned that he is especially receptive to fresh infection for two months. He must be warned to avoid every occasion of contracting a new attack of gonorrhea. These patients are also extremely sensitive to infection with other microbes. It is not uncommon for them to develop a purulent discharge without exposure; under the microscope no gonococci are found. Lavage of the urethra with 1:10,000 bichloride solution results in cure.

Independently of all infection it is not uncommon to notice a persistent muco-purulent discharge. If the urethritis preceding this discharge was apparently recent and did not follow upon an old gleet, it is wise to allow this discharge to disappear spontaneously. If it persists for more than two months a complete anterior irrigation of silver nitrate should be practised. After the disappearance of gonococci lavages of silver nitrate, corrosive chloride, and chloride of zinc, and dilata-

tion of the canal with metal sounds or those coated with a pomade, are indicated.

Those who have most conscientiously followed out the modern antiseptic treatment of gonorrhea will be inclined to indorse nearly all of Janet's statements, and to recommend irrigations appropriately modified to each individual case as the safest, the surest, and often the quickest means of curing gonorrhea. His methods of proving cure are, however, to be condemned without qualification. Also, it would be well if he could devise a method by which patients could be induced to regard a perennial non-gonococcal muco-purulent drop with the resignation, even complacency, exhibited by Janet.

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## Reports on Therapeutic Progress

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### *HYPNOTICS: THEIR CONTRAINDICATIONS AND ILL EFFECTS.*

In the *British Medical Journal* of October 2, 1897, MCPHEDRAN, of Toronto, writes an able paper with this title. He says we have so little exact knowledge of the essential nature of sleep and of the precise effects of the various medicines that produce it, or a somnolent state resembling it, that little more can be made than a general statement of the contraindications to and the ill effects of hypnotics.

As to the nature of sleep, some believe that it is an arrest of all the functions of the central nervous system except those essential to life; others that sleep itself is a function. In either case its occurrence is probably largely due to the accumulation of fatigue products—neurotoxin in the central nervous system. How these fatigue products act is uncertain, but probably by interfering with metabolism. The accumulation of waste products may have a paralyzing effect on the protoplasm of the neuron, lessening its affinity for the oxygen of the blood, possibly by diminishing its alkalinity. As a consequence contraction of the neuron or its processes takes place. There is a loss of contact of the neurons as a result of such contraction, and consequently loss of function in the higher nerve centers causing loss of consciousness. In the lower centers resistance is greater, and there is only a diminution of the vital function, as shown by the slower breathing and pulse-rate, and loss of the reflexes.

Of the physiological disturbances causing sleeplessness, our knowledge is no less im-

perfect than that of the cause of sleep. If sleep be due to the fatigue products, sleeplessness can scarcely be due to their absence, because they must be present in increased quantities in conditions of wakefulness. In insomnia there is always disturbance of metabolism with inadequate excretion of waste products, and therefore, also, of inadequacy of nutrition. It is possible that on this account there is a loss of stability in the neurons leading to irregularity in the action of many of them in response to the stimulus of the fatigue products. That there is derangement of the functions of the neurons in sleeplessness the loss of mental power and of general physical well-being amply proves.

The loss of power of compensation in any part can be restored only by lessening the labor and improving the nutrition of the part. The treatment of failure of compensation in the nervous system is no exception to the rule. In insomnia the neurons fail to compensate for the overstrain to which they have been subjected, and in their restoration all agencies which may interfere with the removal of waste products and increase of nutrition, or lessen their stability, should as far as possible be eschewed.

On theoretical grounds, then, it follows that hypnotic drugs are always contraindicated, but in practise it is often best "to do a little wrong to do a great right."

In a general way it may be said that hypnotics should not be used in those in whom the cause of insomnia is palpable and removable. These causes may be briefly summarized as follows:

1. Digestive derangements, whether from improper food and drink, insanitary surroundings, or from whatever cause. In this class are to be included nearly all cases of disturbance of sleep in children, in whom faults of digestion form the bulk of all their ailments. In the adult, however, these same causes play a very, if not the most, important part in the production of insomnia, much greater than they are usually credited with. In the adult the insomnia is, however, less often due directly to the disturbance of the stomach and bowels—that is, due to a reflex cause—than it is in children, whose nerve centers lack the stability of the adult; but it is more often the result of the absorption of toxic agents produced by the ill-digested food in the digestive tract.

2. Local irritations, such as dentition, irritable diseases of the skin, disturbance of the urinary tract. These are also most common

in children. To these may be added reflex disturbances from disease of the uterus and its appendages. Eyestrain is credited with being a frequent cause of insomnia as well as other reflex disturbances.

3. Overwork and the neurasthenic condition resulting therefrom. In the majority of these cases nutrition and excretion play the most effective part, as with a good state of nutrition and due observance of the laws of sleep, overwork is almost impossible.

4. Anxiety and worry. These should be really included with overwork, as they disturb the stability of the cerebral cells in the same manner.

5. Toxic causes are common. Many of them result from derangements of digestion, and are included under that head. Others result from chronic disease—as gout, lithemia, chronic constipation, and Bright's disease. With these may also be included toxemia produced by excessive indulgence in tea, coffee, alcohol, tobacco, and the habitual use or abuse of such drugs as morphine, chloral hydrate, cocaine, etc.

6. A very important group of cases of insomnia is formed by those suffering from disturbed cerebral circulation, whether due to cardiac, renal, or pulmonary disease, or to disease of the cerebral vessels themselves. The blood-supply may be excessive and vascular tension high, as in arteriosclerosis before cardiac compensation fails; or defective and irregular, as in dilatation of the heart. While in some of these conditions the stronger hypnotics are the potent means at our disposal of giving relief, not only to the insomnia, but also to the causes of it, yet in many of them their use would be unwise, and might be disastrous.

7. In not a few sleeplessness is the result of long indulgence in pernicious habits, mental and physical, in regard to sleep, such as irregular hours, various dissipations, the coming over after retiring of the difficulties and reverses, and perhaps the successes, of the day. Such people are loth to believe how much can be done to recover the power of going to sleep at will. It is vain to retail to them the facts of Napoleon, Wellington, and Grant being able to lie down on the field of battle at any time and take a short sleep if needed. They should be encouraged in the effort, and every cause of disturbance removed and such conditions sought as will bring most composure of mind.

In the treatment of insomnia, then, our first duty is to seek out diligently and treat

intelligently such obvious causes as may exist, as: to remedy digestive derangements, whether of stomach or intestines; to stop the ingestion of unsuitable food and drink; to relieve constipation; to stimulate the free elimination of fatigue products; to relieve local irritations and reflex disturbances; to stop overwork and bring the daily duty within the capacity of the worker; to relieve anxiety; to correct as far as possible all disturbances of circulation; to relieve anemic and debilitated conditions; to secure due regard to sanitary requirements; to cultivate good habits of sleep. In all this our aim is to relieve all sources of irritation, direct or reflex, from the cerebral cells, to supply them with ample nutrition, and to cultivate healthy habits in them. Not until these indications are met is the resort to hypnotics legitimate, unless it be to overcome a temporary difficulty; the further use of them is injudicious, if not injurious.

Unfortunately, there is a large class in whom the cause is not easily discovered nor easily removed; or it may be quite apparent and yet impossible of removal. Of such are many cases of neurasthenia, hysteria, and hypochondria. Many of these have a neuropathic temperament, inherited or acquired. In them slight causes, mental or physical, may induce insomnia. Astigmatism may give rise to eye-strain that, though not noticed in health, causes headache or wakefulness in the debilitated condition; or it may be some slight derangement of the digestive system that is sufficient to prevent sleep in the abnormal state of health. Whatever the cause, though it may be very trivial judged by the standard of health, in the debilitated condition of the nerve centers it is often sufficient to produce disastrous effects. In the mental habit that has developed its importance may be greatly magnified. There is a weakness of will power and a ready acquiescence in whatever brings temporary relief, so that the drug or other habit is easily formed and may be difficult to avoid, and once formed, always difficult to overcome.

When, then, should hypnotics be used? In acute disease sleep is often a necessity in order to secure such a restoration of the vital powers as to render recovery of health, or even continuance of life, possible. In sleep, general excitability of the nervous system is quieted, the action of the heart is reduced, and tissue waste is diminished, while more waste products are excreted. All this contributes to improved metabolism and renewed

vitality. So that in the conditions occurring in acute disease hypnotics may be essential; the sleep obtained, though not characterized by benefit to a degree equal to that of natural sleep, is often invaluable. In chronic diseases the same temporary need may arise, but the use of hypnotics in the ordinary conditions of chronic disease is rarely attended by anything but evil. Of the injurious effects of hypnotics on the cells of the central nervous system practically nothing is known. Changes in the nuclei of the cells have been described; they become smaller and more homogeneous, and color more deeply; but we know what interpretation to put on this. While we know nothing of the histopathologic changes, of the physiological effects there is much known in a general way. The author need not stop to detail the injurious effects of morphine, chloral, cocaine, and alcohol.

Of the continued use of the bromides, it might be pointed out that in addition to the general cachexia with loss of appetite, disturbed digestion, anemia, loss of memory, mental apathy, and commencing paralysis and trembling of the extremities that may be developed by their immoderate use, there may occur also marked mental aberration and alarming homicidal tendencies.

Chloralose in three-grain doses has produced alarming collapse in a woman within an hour. Recovery was slow.

The administration of sulphonal is, even in moderate doses, occasionally followed by fatal results. The symptoms set in with abdominal pain and vomiting, scant and usually dark urine, owing to hematuria. Collapse results, soon followed by death. These symptoms may appear suddenly after the patient has been under treatment for some time and has been benefited by the drug.

These effects have been most frequently met with in women with marked constipation. Owing to the constipation there is probably retention of the sulphonal in the system. But serious results have occurred without the existence of constipation to cause retention of the drug. Eighteen grains daily for three days has caused collapse with pallor, weak, rapid pulse, anemia, diplopia, myosis, hyperesthesia, and paresis, the patient being only able to walk with difficulty two weeks later.

In a woman twenty-eight years old, the subject of melancholia and hysteria, thirty grains given in two doses one and a quarter

hours apart caused sleep for twelve hours; then she was aroused. But the somnolence increased, the pupils contracted, and in forty hours death occurred suddenly.

Hematorporphyrinuria is supposed to be due to gastro-intestinal hemorrhage. In dogs killed with sulphonal active and passive congestion of the meninges has been found, with, in some cases, hemorrhages at the floor of the fourth ventricle.

Marked congestion of the spinal cord and degeneration of the nerve cells of the anterior horns of its lower portion have also been found.

It is evident that greater care is necessary in the administration of this drug than has generally been observed. The laity are coming to look upon it as a safe hypnotic, and many use it without restriction.

The continued use of trional tends to give rise to various disturbances of consciousness, of speech, of hearing, and of vision, to loss of memory, and to ataxia of movements in general. There may be involuntary excretions of urine and feces. To prevent these untoward symptoms its use should be intermitted from time to time.

Paraldehyde is a comparatively safe hypnotic, yet large doses of it have been followed by serious effects. Great dyspnea and collapse have resulted from one drachm in a case of chronic bronchitis. Somewhat larger doses have caused marked delirium with paresis of the functions generally, resembling delirium tremens of alcohol.

The proneness to the formation of a confirmed habit is a strong reason why any hypnotic should be used carefully and with due appreciation of the needs of each individual case. And this propensity to form the drug habit is especially marked in neurasthenics, the very class from which the cases of insomnia are most largely drawn.

In neurasthenia and in conditions of unstable nervous or physical equilibrium, whatever develops or creates self-discipline and self-control in the patient is of great value. Such self-discipline is interfered with by hypnotics.

In some conditions the amount of narcotics necessary to induce sleep is so great that it is better to let the patient lie awake for two or three nights even than to give such large quantities.

If power of compensation is lost, it cannot be restored by any means other than by lessening the labor and improving the nutrition of the parts that have failed. It would

seem eminently unfitting in such a condition to resort to medication that interferes with digestion and assimilation and retards the processes of elimination, when the hope of cure must rest on restoration to a healthy metabolism.

It is wise practise to give hypnotics rarely, and only when other means have failed; then only in the smallest dose necessary to give sleep, being satisfied with the least amount of sleep that is safe.

#### CASES OF GENITO-URINARY DISEASES TREATED BY KAVA KAVA.

LESLIE PHILLIPS writes on this topic in the *Edinburgh Medical Journal* for August, 1897. He begins by expressing the hope that a brief record of results obtained from a clinical inquiry into the action of kava-kava in genito-urinary cases may be of value, particularly as his results do not in some respects coincide with those of previous inquirers. The preparation used was the fluid extract of the root prepared by Messrs. Parke, Davis & Co. The dose given was one drachm thrice daily, largely diluted with water, and the observations were not complicated by the simultaneous use of, or combination with, other drugs, as the author notes is the case in not a few of those published cases in which benefit is ascribed to kava. The general results obtained are here given, and a few only of the cases are given in short detail. Kava appears to have won its best reputation in acute or recent gonorrhea. In the author's experience these are the cases which benefit least from its use.

The following case stands in sharp contrast to the second, in which the drug used early in the acute stage of gonorrhea appeared to produce the complication which in the present case it cured.

Gonorrheal epididymitis; rapid beneficial action of kava-kava: Alfred H., in the fifth week of a gonorrhea, was attacked with a left acute very painful epididymitis, attended with complete subsidence of the urethrorrhea. Kava-kava was ordered. He went about his work as usual, and no local application was ordered. Three days after he began to take kava the discharge reappeared in moderate quantity, and the pain in the testis was relieved. In one week the swelling had very largely subsided, and in fourteen days the testis was of normal size, though a little indurated.

The author has not found kava of use in sexual debility, with frequent nocturnal emis-

sions—that class of cases often labeled “spermatorrhea”—nor in chronic cystitis due to prostatic obstructive disease. In a case of gonorrheal rheumatism it produced at first a decided diminution of the pain, but the effect was evanescent.

#### THE PRODUCTION OF PLASMATIC CELL JUICES FROM THE LOWER GERMS.

H. BUCHNER delivered an address before the Medical Society of Munich on November 10, 1897, based on researches conducted at the Hygienic Institute of the University of Munich, in which he stated that during the course of the past year certain results of interest had been obtained. In the first place Professor Edward Buchner, of Tübingen, succeeded, with the material assistance of Dr. M. Hahn, in developing a method which secures the cell juices of the lower germs practically unmodified. Briefly described, this method consists in mechanical trituration of the moist germ-mass admixed with infusorial earth and fine quartz sand, followed by expression of the doughy mass under hydraulic pressure of 400 to 500 atmospheres.

The first experiments were made with compressed yeast, from one kilo of which was obtained 500 cubic centimeters of a clear, yellowish, slightly opalescent liquid, which on heating coagulated almost *in toto*, and hence possessed a large percentage of coagulable albumen as it occurs in the animal organism. This is a new discovery, for while the lower germs were previously known to contain albuminoids, the presence of true albumen has never until now been demonstrated.

Very remarkable also is the presence, first observed by M. Hahn, of powerful digestive enzymes in the expressed juice of yeast—enzymes which must plainly owe their origin to the yeast cell. To their activity must be attributed the striking fact that the abundant quantity of albumen in the yeast cell juice disappears quite rapidly at the temperature of the incubator, even when, by the addition of an antiseptic (as, for example, chloroform) the development of living germs is completely excluded. We accordingly have here a species of autodigestion which can be ascribed to nothing else than the action of enzymes.

Another phenomenon of fundamental importance was observed by Edward Buchner in the expressed juice of beer yeast—the

*development of genuine alcoholic fermentation without the presence and cooperation of any living organism whatsoever.* All that is necessary is to add a little sugar solution to the clear juice (should the juice not be clear it is to be clarified by passing it through filters of “kieselguhr” or porcelain); bubbles of carbonic acid appear at once, or after five to fifteen minutes, according to temperature, and the fermentation continues in the same intensity for days. This phenomenon, which at first provoked many doubts, has now been established by oft-repeated experiments, and has been sufficiently studied in a chemical light to be regarded as a positive datum. We are thus taught that in the process of fermentation it is not the vitality of the yeast cell as such that accounts for the chemical changes; rather these changes must be ascribed primarily to a special enzymic substance contained in the yeast cell.

This enzymic substance, which has been named *zymase*, is of course the product of the yeast cell, but is capable of exerting its action after it has once been elaborated independently of the living cell. A remarkable fact is its susceptibility to extraneous influences. Very slight exposure to warmth is sufficient to destroy its activity, whereas antiseptics, such as one- or two-per-cent. solutions of arsenite of sodium, which are very injurious to the living cell, have but little influence upon it. Again, the action of *zymase* is extinguished when the expressed yeast juice containing it is stored for even a short time. This fact, in conflict with earlier views, is probably due to the process of autodigestion already mentioned. Dried *zymase* is permanently active. It can be precipitated from the expressed yeast juice with alcohol and can be isolated to a certain degree of purity.

After it had been shown by these experiments that the new method really permitted us to obtain the contents of germ cells in unmodified and active form, the thought at once suggested itself that the new method might also be applied to bacteria, especially the pathogenic species. Since new and previously unknown properties had been observed in the expressed juices of yeast cells, there was ground for the hope that special and specific properties would be encountered in the expressed juices which might be prepared from bacteria. The task thus outlined (in which, of course, many technical and biological difficulties remained to be overcome) fell naturally to the lot of Dr. M. Hahn, in-

asmuch as he had done so much in the elaboration of the general method, and his results are given in the following paragraphs. Buchner merely mentions that he has selected for the plasmatic cell juices of the various lower germs, obtained by the new method, the common and comprehensive designation of "Plasmins." This name indicates that we have to deal in all these cases with albuminous plasmatic liquids. Individually they are to be differentiated under the names of "typhoplasmin," "cholera-plasmin," "tuberculo-plasmin," etc.

With the tuberculo-plasmin Buchner and Hahn have treated a series of guinea-pigs, previously infected with a pure culture of tubercle bacilli or with the human sputum containing bacilli. In most instances the treatment was begun two weeks after infection, with very small doses, gradually increased. The animals reacted distinctly in every case, in the main with moderate but often with more pronounced symptoms of fever. The treatment was continued for months.

Of the large number of animal tests we will single out only those which can be regarded as truly demonstrative—that is, those in which the control animals, infected at the same time and in the same measure, succumbed more than one and a half months ago to pronounced general tuberculosis. The other series of tests are not mentioned for the reason that as a result of the behavior of the control animals they can attribute to these tests for the present no absolute demonstration of power. Only twenty-three animals are to be considered. Of these, six were control animals. These six animals succumbed within one and one-half to four months after infection to a pronounced disseminated general tuberculosis. Out of seventeen animals treated with tuberculo-plasmin, five yielded absolutely negative results—that is, they died after being treated two to three and a half months; autopsy showed pronounced general tuberculosis, without any modifications which might indicate a curative process or warrant the inference that the dissemination of the tuberculosis had been visibly impeded. Three of the treated animals died within the first one and a half months of treatment—some within the first fourteen days; and in view of the shortness of the space in which they received no treatment at all Buchner and Hahn are not in a position to use these animals for statistical purposes in either a positive or a negative

sense. Four animals showed partially positive results—that is, they died after several months of treatment, exhibiting in their organs tuberculous modifications, but the dissemination of the tuberculosis was less marked than in the control animals, the lung lesions being less pronounced, or not at all invaded. Further processes were perceptible which pointed to cure, notably a marked formation of connective tissue in the neighborhood of the tubercle. Five animals yielded an incontrovertible, positive result, inasmuch as they are to-day alive, whereas the control animals succumbed one and a half to two months ago.

If we consider the great susceptibility of the guinea-pig to tuberculosis, as well as the potency of the injection employed, we must admit that the results obtained—the preservation of almost one-third of the injected animals—cannot be termed an unfavorable showing. And Buchner and Hahn cannot avoid referring these results to a certain specific action exerted by the tuberculo-plasmin on the tuberculous infection; for the natural power of resistance in guinea-pigs is *per se* a very slight one and seems to be susceptible of augmentation only within very narrow limits—for example, by the production of hyperleucocytosis.

Buchner and Hahn are by no means of the opinion that tuberculo-plasmin is a remedy suited to all cases of human tuberculosis. The issue of the experiments thus far made seems rather to support the view that experimentation with the remedy at the bedside would be justifiable. The clinical experiments thus far made, although few in number, have at least established the harmlessness of the remedy when carefully administered. Buchner and Hahn feel that they ought to lay stress on the fact that it is possible with their process to obtain the cell contents of tubercle bacilli in a relatively easy and harmless manner as well as in a form which renders possible therapeutic employment.

It is not, however, to be expected that the results in the human patient will be as great as those obtained in the tuberculosis of guinea-pigs. The pulmonary tuberculosis of human beings usually presents itself for treatment in a comparatively much more advanced stage; it exhibits great individual fluctuations and frequently secondary infections. All these facts combine to form a more highly complicated morbid process than that which confronts us in guinea-pigs—which tends to baffle the correct application



of a specific remedy. Again, it must always be remembered that the guinea-pig receives per gramme of body weight much more specific substance than is ever the case in the human being; for considerable difficulties will always confront the single injection of large quantities of such a remedy. In the small doses, however, which can be injected into human beings, there is certainly always present a small quantity of specific substance; and if it be desired, so to speak, to impregnate the diseased organism by specific substances, it will be necessary to resort to frequent injections which must be prolonged for months, beginning with small doses and gradually increasing the quantity of each injection. Under such treatment the tuberculo-plasmin will also produce a non-specific action—hyperleucocytosis—whose favorable influence on experimental infection has been reported from various quarters.

#### GELATIN AS A HEMOSTATIC.

The carpenter's time-honored recourse to the glue-pot in case of cut fingers and the like has lately received scientific justification at the hands of Dr. PAUL CARNOT, an interne of the Paris hospitals, who treats of gelatin as a hemostatic in *La Presse Médicale* of September 18. He divides hemostatics into two great groups—those that, like ergotin, constrict the vessels and retract them, leaving to spontaneous coagulation the work of obliterating the openings, and those that, applied locally, hasten coagulation, such as perchloride of iron, the salts of calcium, gelatin, gelose, etc.

There are several objections, M. Carnot thinks, to the vaso-constrictor hemostatics, such as ergotin, pyoktanin, and extract of suprarenal capsules. In the first place, most of them are very poisonous. In the next place, when coagulation takes place in a retracted vessel, the clot is strained and apt to be torn on the return of the vessel to its normal caliber, thus occasioning a recurrence of bleeding. Moreover, the arterial pressure is augmented, and that is an unfavorable condition if many vessels are involved. Finally, general vaso-constriction facilitates infection in an organism weakened by hemorrhage. With regard to this point, he cites Bouchard and Charrin as having shown that vaso-constriction is a weapon in the hands of micro-organisms at the time of their implantation, and that the system reacts by setting up vaso-dilatation, which favors diapedesis and

the diffusion of defensive juices. Recent experiments, he adds, have shown that at the beginning of an infection it is of great importance to effect vascular dilatation; if rabbits infected with a fatal dose of such cultures as that of Eberth's bacillus, for example, are made to inhale amyl nitrite at once, they survive, whereas the test animals perish in a few days. For these reasons, M. Carnot thinks the use of vaso-constrictors should be restricted to cases in which the hemorrhage is insusceptible of topical treatment.

The hemostatics of the second group—the coagulants—on the other hand, he says, do but exaggerate the natural hemostatic process. The coagulation of blood outside the vessels plugs them efficiently in the majority of cases, but it fails if the wound is too large or if the blood is so altered that its coagulability is impaired, as in animals poisoned with peptones or leech extract and in cases of hemophilia. The author adds the interesting observation that he has seen two dogs under the influence of peptones die of intestinal hemorrhage caused by ascarides. But there are grave objections to most of the coagulants that are in common use, says M. Carnot, especially to perchloride of iron. A few of them, however, are well-nigh harmless; they are the salts of calcium, especially the chloride, and gelatin and gelose.

It seems that the coagulant property of gelatin was discovered by Dastre and Floresco, whose report of experiments was made to the Society of Biology in February, 1896, and published in the *Archives de Physiologie* for April of that year. They were properly careful to distinguish between coagulation and gelatinization, and they found that an amount of gelatin that was too small to cause gelatinization augmented the coagulability of the blood. But M. Carnot thinks that both properties, the coagulating and the gelatinizing, are of value in bringing about hemostasis, and it is their association in gelatin that makes him prefer that substance to calcium chloride. Since gelose gelatinizes at a temperature higher than that of the human body, he adds, it is still more useful. Experiments have shown him also that both gelatin and gelose play the part of nutrients in a wound and hasten its healing.

M. Carnot states that he has used gelatin both as a local hemostatic and to modify the coagulability of the blood as a whole. As a local hemostatic, he employs a solution of gelatin in water, or better, in the physio-

logical (seven to a thousand) solution of sodium chloride. This is sterilized by keeping it at the boiling point of water for fifteen minutes at a time on two occasions, two days apart. The temperature should not be raised to 239° F., for that sometimes destroys its gelatinizing property. The strength of the solution varies according to the end in view; generally it is from five to ten per cent. An antiseptic may be added without impairing the coagulating and gelatinizing properties of the solution, but it is only in special cases that he does it, for one of the advantages of gelatin is its harmlessness.

It was in comparatively simple cases that M. Carnot first tried gelatin, such as those of rebellious epistaxis in children affected with hemophilia. In one such case the child was almost bloodless, having several attacks of nosebleed daily. Antipyrin, perchloride of iron, and other applications had been used without success. The nostril from which the blood proceeded was injected with thirty or forty cubic centimeters of a five-per-cent. solution of gelatin, and a tampon wet with the same solution was left on its orifice. The hemorrhage stopped at once. On the following day bleeding took place from the other nostril, and it was stopped in the same way. There was no more epistaxis, but the child had in succession purpuric, intestinal, pericardial, and other hemorrhages, and at the time of its death it had only 365,000 red corpuscles left (to the cubic millimeter of blood, we presume). The treatment, then, was efficient locally, says M. Carnot, in spite of the great alteration of the blood.

M. Carnot recommends that the solution be not used too hot, partly because gelatinization would thereby be retarded, and partly because the gelatin acts only by contact with the blood; the energetic vascular constriction produced by the heat would arrest the hemorrhage for an instant, but blood and gelatin being no longer in immediate contact, no plugging clot would be produced. It is better, he says, to use a solution of about the temperature of the body. The mode of application is the same for any hemorrhage from a cavity readily accessible. For cutaneous wounds, and particularly for those of the fingers and hands, M. Carnot has frequently used solutions of gelatin. He simply moistens the wound with a few drops of the sterilized solution, and leaves on it for a few minutes a pledget impregnated with the same solution. Hemorrhages from ruptured varices and those from the rectum are

amenable to the same treatment, but hemorrhages from the stomach are not, for the gastric juice at once transforms the gelatin.

In cases of uterine hemorrhage, says M. Carnot, the application is a little more complicated, for the necessity of direct contact between the gelatin and the bleeding vessels requires the injection to be intra-uterine; hence it should be done with all known precautions, and especially with sterilized solutions and aseptic instruments. The author has thus far employed the treatment in only one case of metrorrhagia, due to a fibroma, and in that he was perfectly successful. He has often used gelatin water in place of hemostatic forceps, and has found it sufficient to hold tampons wet with the solution against the bleeding points for a few seconds.

Incidentally M. Carnot relates an interesting case of the successful replacement of a severed part. A young workman had the last joint of one of his fingers detached by a clean cut. About half an hour after the accident the author saw him at the Hotel Dieu. The young man had the end of his finger in his pocket, carefully done up in paper. The wound was bleeding very freely. The bleeding was arrested immediately by the application of a solution of gelatin stronger than that usually employed. M. Carnot then applied the detached portion of the finger, and kept it in place by wrapping the whole digit with iodoform gauze and then with strips of sticking-plaster. The man came back at the end of two days, when the severed joint was neither decomposed nor desiccated. Very curiously, says the author, the patient could feel quite a slight pressure on the end of the finger, but it had no sensibility to heat or to pain; perhaps, he adds, the sensation felt was only transmitted to the line of section. The "graft" was finally successful.

It is only on the lower animals that M. Carnot has tried gelatin in the more difficult problems of hemostasis. In experimental resections of very considerable portions of the liver, he says, he soon renounced all sorts of ligation, and now contents himself with a few seconds' contact of the gelatin solution with the bleeding surface, even taking pains not to make any pressure in applying it. As soon as a clot has formed and the surface ceases to bleed, the liver is replaced in the abdomen; generally a few cubic centimeters of the gelatin solution is poured into the peritoneum before the abdomen is closed, to guard against the danger of recurrent

hemorrhage; and he has never known death from bleeding to follow.

M. Carnot speculates about the use of gelatin in the case of a large wounded artery. After division of the carotid, he says, it would evidently have small chance of proving efficient; nevertheless, combining it with clamping of the vessel for a few minutes would perhaps give the clot time to adhere solidly enough to resist the arterial pressure, and thus do away with the necessity of leaving in the wound threads difficult of absorption.

As regards the use of gelatin for the purpose of enhancing the coagulability of the blood in its totality, M. Carnot can speak only with great reserve. Intravenous injections of gelatin in the human subject he thinks unwarranted, owing to the danger of producing massive clots. In several instances, however, he has injected gelatin subcutaneously and into the rectum with success. In a "bleeder" the spontaneous hemorrhages were thus made to cease; in another case purpura was caused to disappear rapidly. But the author says that he has been too much restrained by fear of rendering the coagulability of the blood too great to generalize concerning these results.—*New York Medical Journal*, Oct. 23, 1897.

#### ANTIPYRIN AND LACTATION.

After various researches made by M. G. Fieux, says a writer in the *Bulletin Médicale* of September 5, 1897, he reached the following conclusions:

1. Antipyrin certainly passes in a natural state into the milk.

2. Given in large doses, in two capsules each containing fifteen grains at intervals of two hours, it may be detected in the milk in from five to eight hours after its ingestion, and from nineteen to twenty-three hours afterward it cannot be discovered, so elimination lasts eighteen hours at the maximum.

3. The antipyrin during this time passes into the milk only in an excessively weak proportion, very much less than fifty parts in a thousand; it is only in exceptional conditions—for instance, when sixty grains are administered in sixteen hours—that it perceptibly reaches this proportion.

4. It does not influence in any way the quality of the milk and, particularly, the lactose, the casein, or the fat.

5. It seems to have no action at all on the secretion, which always remains very

abundant, provided the woman continues to nurse.

6. From the absence of general symptoms and from examinations of the weight, the infinitesimal quantity absorbed by the nursing does not seem to have any unfavorable action.—*New York Medical Journal*, Oct. 23, 1897.

#### DEATH AFTER WORMSEED.

Dr. A. K. BOND reports a death due to an excess of wormseed, in the *Maryland Medical Journal*, August 7, 1897.

The patient, a boy about three years of age, complained of "stomach-ache" for several days. His ignorant mother made a diagnosis of "worms," although no worms were at any time seen in the stools, and going to the drug store purchased of the clerk a quantity of wormseed oil.

On the same night (June 28) she gave the child ten drops of the wormseed oil on sugar. Not all of the sugar thus medicated was taken. Next day the bowels were freely moved, no worms appearing, and no odor of wormseed being noticed in the stools.

On the morning of June 30, half an hour before breakfast, the mother gave half a teaspoonful of the wormseed oil undiluted. Half an hour after breakfast the patient vomited twice and went into a stupor. The mother being frightened sent for Dr. Bond. On arrival, he found the patient lying quiet, but he could be aroused by rough shaking. The eyes were closed, the pupils small but equal; the pulse and respiration normal; no fever present. Vomiting was secured twice by salt and water, the water coming up clear. The author gave one grain of calomel and ordered repeated half-teaspoonful doses of castor oil at perhaps hourly intervals.

At midday the pulse was 96, the respiration 48, with snoring breathing and much mucus in the mouth, sweat on the face, deep stupor, and beginning twitching of the right hand. The pulse soon rose to 120. No urine had passed since the morning dose of the wormseed oil was given, and there seemed on external physical examination to be little or no urine in the bladder.

At 1 P.M. slight passages were procured by an enema, which smelled of wormseed; after which brandy was thrown into the bowel. The pupils at this time were equal and not unnaturally dilated. The mouth and hands twitched occasionally. There was deep stupor, from which the patient could not be aroused. The body was comfortably warm

At 3 P.M. the pulse was 128, the respiration 56, rattling as before, and diaphragmatic. There were large râles in the left side of the chest and little or no respiratory movement on the right side. No urine yet passed; sphincters holding; deep stupor. The spasmodic twitchings had ceased. Hot external applications were ordered, but it was evident that death was setting in. The patient died at 4 P.M. of this same day (June 30).

Two questions naturally suggested themselves: Is oleum chenopodii liable to produce fatal poisoning? and, if so, was the fatal issue in the case just related due to the administration of this drug? Upon the first point authorities are strangely at variance. The use of wormseed oil is wholly confined, as far as the author can learn, to North America. European writers do not speak of it, simply because it is in Europe unknown to the profession or public. The plant from which wormseed oil is obtained, the *Chenopodium anthelminticum*, is a native of North America, and began to be used as a vermifuge soon after the discovery of this continent. It grows very abundantly as a rank weed about country residences, and Baltimore is the chief center for the manufacture of its oil. It is a favorite domestic remedy in country families, prepared freshly by the women of the family for each occasion. When a child, in the family is supposed to "have worms"—namely, round worms, ascarides lumbricoides—the yard about the house is searched, and without difficulty some of the weeds are found. A handful or two of the seeds are rubbed off the weed and dropped into a vessel. Boiling water is now poured on the unbroken seeds and allowed to cool; it is then poured off the seeds, sweetened with molasses, and given to the child in indefinite quantities until worms are passed, or until the child improves in health, or until the mother decides that her diagnosis was mistaken. Sometimes it fetches worms, being rendered aperient by the molasses or by subsequent cathartics. Even if no worms are brought to light, the child usually improves in health from some cleansing or tonic action of the wormseed tea on the digestive tract. As the tea is believed to be harmless, no definite quantities of the seed or of the tea are observed.

The oil of wormseed, prepared by the manufacturing pharmacists, is a much more powerful drug. Plain country people are somewhat afraid of it, as it is credited with occasional severe or fatal effects.

American writers on therapeutics seem to consider the plant and its preparations practically harmless.

Waring's Therapeutics, 1866, quotes Dr. Dewees as saying that it is a good anthelmintic (for round worms, of course), but that preexisting fever is a contraindication. No warning of any danger from its use is given.

Mitchell's Therapeutics, 1850, speaks favorably of its uses from hearsay, but gives no warning of danger.

Eberle's Therapeutics, 1847, speaks highly of it, and says that we may give an electuary of the powdered seeds in syrup in the morning before eating, and again some hours after supper; or may give of the wormseed oil to a child two or three years of age three to eight drops twice a day in sugar or mucilage, and after it has been taken thus for three or four days should administer a brisk purgative. No hint of danger from the remedy is given.

Bartholow's Therapeutics, 1880, gives a very brief description of the agent: that it increases the action of the heart, skin, bronchial passages, and kidneys, being a diffusible stimulant. Here also no note of warning against possible injurious effects is given.

H. C. Wood's Therapeutics, 1891, states that the oil becomes darker and less fluid with age; that it is very efficient against round worms; that the dose of the wormseed oil is ten drops, to a patient three years of age, given on sugar before each meal for two days, followed by a brisk purge. No warning is given in the text against harmful possibilities. In a foot-note a reference is made at some length to a case reported by the late Professor T. R. Brown, of the College of Physicians and Surgeons of Baltimore, in the *Maryland Medical Journal* for 1878, vol. iv, pp. 20-28, in which a fairly healthy young man died two days after taking an ounce or more of wormseed oil. The foot-note closes with the remark: "It is plain that the wormseed was not the direct immediate cause of all these symptoms (related in the case report) or of the fatal result."

Foster's Dictionary of Therapeutics gives no warning that the chenopodium is in any way dangerous or that overdose is to be avoided.

#### FORMALDEHYDE AS A DISINFECTANT.

In the *New York Medical Journal* of October 16, 1897, Doty gives the results of a careful study of formaldehyde as a disinfectant. He concludes that a careful analysis

of the results obtained in this experimental investigation to determine the value of formaldehyde as a disinfectant shows that this agent cannot be depended upon for disinfection where deep penetration is required. It can, however, be relied upon to penetrate letters and other thin packages if placed in an air-tight chamber. It is here that the importance and value of a vacuum is appreciated. Packages of the character just described are usually penetrated in a comparatively tight room. This has been proved not only by the germicidal effect upon the micro-organisms contained, but by the effect on blotting-paper, ribbons, and silk, colored with fuchsin and magenta, and placed inside of letters, the envelope being tightly sealed. The change of color is very apparent upon opening the package after treatment. In packages made of blankets, clothing, etc., the action of formaldehyde upon infected disks placed inside is uncertain and not always the same. As a rule, penetration does not occur; at least the organisms are not generally killed. This uncertainty would seem to decide the inefficiency of formaldehyde for deep penetration. For superficial disinfection — *i. e.*, of hangings, furniture, clothing, furs, silks, and other articles which can be spread out and the surface exposed—formaldehyde is an agent of undoubted value, particularly as it does not, as a rule, injure the finest fabrics, and therefore may be safely used in an apartment furnished with delicate paper-hangings and furniture.

In the selection of the method for disinfection with formaldehyde, it is evident that the use of a formaldehyde solution simply exposed on pans is not to be considered, provided other methods are available. The heating of pastilles of paraformaldehyde is a simple, effective and neat method of securing the gas, although at present it is a comparatively expensive one. It is necessary, however, that the apparatus for heating the pastilles should remain in the apartment until the time for disinfection has expired. The gas is therefore evolved slowly and its release depends upon the proper performance of a lamp which cannot be kept under observation. For the same reason it may not burn sufficiently long to reduce the pastilles to ashes, or an accident may happen. These are only possibilities.

The lamp for the generation of formaldehyde by the oxidation of methyl alcohol is also an effective method. This method of securing the gas is considerably cheaper than

the preceding one—a pint and a half of wood or methyl alcohol, valued at twenty cents, being sufficient for the disinfection of a room having a space of one thousand cubic feet, whereas the expense of the pastille for this purpose is about seventy-five cents. Like the apparatus just described, the lamp can be purchased for a comparatively small sum, is easily manipulated, and is very satisfactory for house disinfection. However, it is practically subject to the same criticism—*i. e.*, that the process is comparatively slow, and the lamp remains in the apartment, and not under observation, until the disinfection is completed. In a structure subject to change of position, as a ship, it is not improbable that an accident might occur.

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#### THE TREATMENT OF ECZEMA WITH PICRIC ACID.

In an article on this subject in the *Nouveau Montpellier Médical* for September, 1897, M. A. BROUSSE remarks that the kerato-plastic property of picric acid, which has been successfully used in burns, seems to indicate that its employment is proper in the treatment of eczema, certain forms of which present great analogies to superficial burns. In 1889, he says, Cerasi employed this drug in seven cases of eczema with excellent results. Dr. McLennan, of Glasgow, was also very successful in the treatment of acute eczema and eczema of the face with this drug, which he used in a saturated solution. The author himself has obtained rapid recovery in several cases in which he has employed this treatment, the histories of which are given in detail. In cases of lichenoid eczema with a thick epidermis the acid was useless, but in acute oozing eczema accompanied by edema of the skin it was very useful. Under its influence in one case recovery was obtained in two weeks; in another case, in ten days.

Among the advantages of this treatment are the immediate relief produced by the application of the picric acid solution and the disappearance of the pain, heat, and itching; the rapidity with which edematous tumefaction is effaced; and the absolute painlessness of the dressing, even when it is applied to the bare surface of the derma. According to the opinion of the most competent observers, the extensive application of this drug does not give rise to any symptoms of poisoning. Not only is it useful in acute eczema, but it is also useful in acute attacks

of chronic eczema which are so frequent in arthritics, particularly if they are accompanied by oozing and ulceration of the skin; it is equally useful in the seborrheic eczema of infancy. The author states that the results obtained by him with this treatment absolutely confirm those indicated in the publications of Dr. McLennan, M. Gaucher, and M. Leredde.

M. Brousse therefore concludes that this treatment is indicated as follows: (1) In acute eczema; (2) in the acute attacks of chronic eczema, particularly if there is a tendency to oozing and ulceration of the skin; (3) in the seborrheic eczema (impetiginous) of infancy. This treatment, he says, is contraindicated in chronic eczema and generally in all those forms of eczema which are accompanied by a thickening of the epidermis (lichenoid eczema). Nevertheless, it has the advantage, even in these cases, of allaying the itching.—*New York Medical Journal*, Oct. 16, 1897.

#### NOTES ON THE TREATMENT OF STATUS EPILEPTICUS.

L. PIERCE CLARK in *Pediatrics* of August 15, 1897, tells us that since the opening of the Craig Colony for admission of epileptics many cases of status epilepticus have occurred, but as yet no deaths have taken place from the same. Many remedies have been tried; chloral in large doses (forty to eighty grains) has been given, but little real benefit has been obtained from this drug even when it has been given alone and in very large doses. It is a powerful sedative upon the whole vascular system, and especially upon the heart. It cannot but be productive of great harm when given in very large doses, for at such times the heart is probably laboring under a heavier burden than it is ever called upon to bear in any other affection; therefore chloral should be given with extreme caution.

It is difficult to see how emetics can be of any value, offering as they do great hindrance to normal respiration. Occasionally drugs having this action have been administered, but they have been much more productive of harm than good.

Although chloroform is spoken of by many writers as being only "palliative," yet it can often be employed with great advantage if used with caution, and only at such times when the seizures are about to begin. It must never be given at the sleep or stupor

stage, as at such times it may cause deep coma and even death. The so-called "palliative treatment" is frequently of the utmost importance; in fact, the palliative treatment is about the only one which is of any great service in treating status epilepticus, therefore chloroform should be tried in all obstinate cases. Morphine has proven of some value when used in conjunction with other drugs, but used singly it shows a very uncertain action in epilepsy, so much so that its benefit or failure in any particular case cannot be proven until it is tried.

Nitrite of amyl is a remedy often spoken of with great favor, but the writer has never seen a case in which its administration was a benefit; on the contrary, he has often seen it do positive harm, even provoking or prolonging an attack. From his experience its disuse cannot be too thoroughly recommended. He has seen epileptics who have been supplied with nitrite of amyl pearls or small vials of the drug, which the patients have been instructed to carry in their pockets in order that they might use it whenever an aura occurred. Frequently such cases are automatic and are almost certain to perform many semi-unconscious acts which they would not otherwise do were they in a normal state. While patients are in such a state the writer has seen them upon the point of swallowing enormous doses of the drug, which if a nurse had not prevented them from doing would have been productive of fatal consequences. Again, reasoning upon the physiological action of nitrite of amyl, its use would seem to be extremely limited in all epileptic conditions.

It is but fair to say here that in such an institution as the Craig Colony, where the proper food, exercise and hygienic surroundings are obtained, the manifestations of status in epilepsy are less severe and much more amenable to treatment than cases occurring in a physician's private practise.

The writer has not tried the various remedies recommended for status epilepticus without making some observations and experiments of his own. The prescription which will be given with this article has undergone various modifications from time to time, until it now seems to have become sufficiently crystallized to report for trial away from the Colony. No cases of status have occurred as yet at the Colony where it has not been possible to give this remedy by the mouth; indeed, all medication for status should be given at such times as the drug can be

taken by the mouth. To any one unacquainted with the conditions of status the writer cannot urge too strongly the great necessity of the very earliest treatment possible; half the terrors of status are removed when we recognize that it is a condition demanding immediate action. If the condition is cared for at an early moment the whole organism is in a fair condition to respond to the drugs which may be given; but if delayed, enormous doses of chloral bromide and morphine may be given without any result whatever. After treatment has been instituted by the prescription which is here given, almost all cases of epilepsy have had no seizures following its administration. In a few, two or three attacks have occurred for the first fifteen or twenty minutes after its administration, but no longer. The prescription is as follows:

R Tinct. opii deodoratæ, 5 minims;  
Potassi bromidi, 25 grains;  
Chloral, 20 grains;  
Liq. morph. sulph., 1 drachm.

M. Sig.: One dose; repeat in two hours if necessary.

An explanation of the efficacy of this prescription might be hazarded on the following principle: The chloral and morphine are the first to act in their respective order, the chloral as a sedative upon the vascular system and especially upon the blood-supply in the brain; the morphine as a sedative on the nerve cell. Following their immediate combined action we get the slower and more permanent effects of the bromide and opium upon the cerebral centers.

#### TREATMENT OF BURNS.

MARIE B. WERNER in the *Polyclinic* of October 30, 1897, advocates the following treatment for burns, which is simple and appeals at once to the ordinary reasoning mind:

1. Place the burned member or surface in a carbolyzed bath of from two to five per cent., depending on the age of the patient and the extent of the injured surface. A threefold effect is gained by this—*i.e.*, antiseptis, aseptis, anesthesia.

2. Remove all the acid solution by a second bath in the physiologic saline solution.

3. Dust the entire surface with a powder containing acetanilid (one part) and compound zinc stearate (five parts).

4. Cover surface with narrow strips of Lister's green protective, or, if economy must be studied, thin gutta-percha tissue can be used instead.

5. Place wet sublimated gauze ten to twenty thicknesses over and around the surface, followed by ordinary bandaging.

The subsequent dressings differ only in one or two points from the first, as stated above. The carbolyzed bath is substituted by one of either the saline solution or a weak solution of mercury bichloride, followed by a spray of hydrogen dioxide which will aid in removing all the pus and loose dead tissues; after this, the surface is dusted with the powder, and protective strips, gauze and bandages are applied. These dressings are changed as often as needed, the extent and depth of the burn making its own rule, usually known by the amount of drainage and odor.

The advantages of this treatment over and above that of lotions, oils or salves are: freedom from any accumulation of fats with dead epithelium, encouragement of a healthy epithelial granulation under a clean moist dressing, the Lister protective serving in the double capacity of preserving the new epithelial cells and as a temporary integument.

Finally, and not least in importance, there being almost an entire absence of fibrous tissue, there is less danger of those unsightly deformities often due to the contracting cicatrix, which is also so often accountable for the sluggish circulation and nerve pains.

#### THE TREATMENT OF SPASM OF THE LARYNX IN INFANTS.

In the *Journal de Médecine de Paris* of October 24, 1897, VARIOT speaks of the various sedative medicaments which can be employed to quiet spasm of the glottis, and suggests that in the interval between the attacks a small teaspoonful of the following potion be given three times a day:

R Bromide of potassium, 15 grains;  
Ether syrup, 6 drachms;  
Syrup of orange flowers, 6 drachms;  
Distilled water, 6 drachms.

Or the following may be employed:

R Musk, 2 grains;  
Bromide of potassium, 15 grains;  
Syrup of orange flowers,  
Distilled water, of each 6 drachms.

At night a suppository may be inserted made up as follows:

R Extract of belladonna,  $\frac{1}{4}$  grain;  
Solidified glycerin or cacao butter, 30 grains.

Night and morning it may be advisable to give the patient five drops of a mixture composed of seventy-five minims each of

aconite root and tincture of belladonna. This may be gradually increased until the patient takes twenty drops. In some cases it may be well to rub the patient's neck and chest with equal parts of lard and gray ointment. The general tendency of the treatment should be to improve the patient's nervous tone, and with this idea in view syrup of the iodide of iron or cod-liver oil are useful. Should the patient have any evidence of rachitis, and most children with spasm of the larynx suffer from this condition, remedies devoted to the relief of this state must be resorted to. Attention should also be paid to the teeth, and if the eruption of the teeth is difficult lancing should be employed. Where cases are particularly obstinate small doses of codeine, as for example one-quarter of a grain during twenty-four hours to an infant of a year, or one-half to one grain during this period to a child of three years, may be given. The best way of administering it is to place the codeine in a teaspoonful of coffee. The author concludes that codeine is a valuable agent in the treatment of this condition.

[Throughout the physician should always recollect that spasm of the glottis is not a disease but the result of rickets or some perverted condition of the general system. His therapeutics should, therefore, not be devoted to the administration of nervous sedatives which will give but temporary relief, but to the improvement of the general health of the patient, the careful regulation of the diet, avoiding all substances which will produce irritation of the digestive apparatus, and the relief of the attack of croup by applying hot cloths to the throat and chest or by the use of the hot bath. Very frequently an attack may be prevented by the careful regulation of the temperature of the room in which the child sleeps, and if the air of the room is moistened by some vapor given off from slaking lime or the boiling contents of a teakettle, both patient and nurse may have a comfortable night by avoiding the paroxysm.—ED.]

#### *PULMONARY TUBERCULOSIS TREATED BY ICHTHYOL.*

In *La France Médicale* of November 12, 1897, BRANTHONNE considers the value of ichthyol in old pulmonary tuberculosis and records a number of cases in which he has employed this treatment. His method of administration is as follows: A mixture of ichthyolate of ammonium two and a half

drachms and of sixty-five-per-cent. alcohol six drachms is made, and thirty drops of this is given in a glass of water several times a day. The dose is gradually increased two drops a day until 150 drops are taken, when the ascending doses are stopped. In some cases the medicine may be given in pill form, the patient gradually going up to forty-five grains of ichthyol a day. The author of this article believes that the action of ichthyol in this case is similar to that of creosote, and quotes a number of German and French authorities who have resorted to it. The advantages of the treatment are that it does not irritate the stomach to the extent that creosote irritates it, that it diminishes the expectoration, improves the general sensations of the patient, causes an increase in weight, restores menstruation in women suffering from the disease, and altogether favorably modifies the *morale* of the patient.

#### *THE TREATMENT OF ERYSIPELAS IN THE NEW-BORN BY ANTISTREPTOCOCCIC SERUM.*

In *La France Médicale* of November 12, 1897, DAUCHEZ insists that in grave cases of erysipelas in new-born infants the prognosis is most unfavorable, and that active treatment is needed. Under these circumstances he believes that serum therapy may be of great value. In regard to statistics concerning this matter, he quotes those of Marmorek, who had forty-five cures out of forty-six cases of erysipelas which were injected with antistreptococcic serum; the forty-sixth case succumbed to an attack of pneumonia. To be sure, most of these cases were in adults. These results correspond to the conclusions of Dr. Chantemesse, who has collected statistics in regard to the results obtained by different methods of treatment of erysipelas. Thus in the classical symptomatic treatment of the disease so resorted to, out of 145 patients there were five deaths, or a mortality of 3.45 per cent.; with treatment by means of cold baths there were 409 patients with sixteen deaths, or a mortality of 3.90 per cent.—in other words, an average mortality of 3.79 per cent. On the other hand, when patients were treated by the antistreptococcic serum of Marmorek, there were 297 patients with five deaths, or a mortality of 1.70 per cent., the serum being 1:7000 strength. When the weaker serum was employed—namely, 1:2000—there were 107 patients and seven deaths, or a mortality of 5.54 per cent. When the most



efficient serum was employed — namely, 1:30,000—there were ninety-seven patients and one death, or a mortality of 1.03 per cent., making an average of 2.59 per cent. These statistics demonstrate the necessity of avoiding the employment of the weaker serum.

Roger and Charrin have injected doses of five cubic centimeters into a cachectic infant of three weeks for the treatment of the erysipelas without any accident and obtained a cure in four days. The result which followed the injection of this serum was a constant, rapid and progressive lowering of the temperature. For the successful reduction of the temperature two doses of thirty cubic centimeters are usually necessary for the adult, while in children two doses of from five to ten cubic centimeters, according to age, are usually indicated. The temperature usually falls rapidly and progressively from this treatment, and the patient feels much improved. Its use also causes a diminution in the enlargement of any glands which may be swollen.

Gaucher then records the case of a male child who weighed eight pounds at birth and who at the time he came under treatment was six weeks old. He was nursed at the breast, but the mother was taken with a small abscess on the right side, furuncular in character, and the infant soon after developed suppuration about the umbilicus, which was treated by means of lotions and iodoform. Shortly after this the patient was seized with a convulsion; the rectal temperature became above normal; vomiting and finally high fever developed. No albumen, however, was found in the urine, which was passed in fair quantity. An examination at this time showed in the neighborhood of the groin on the right side a red swelling which speedily became erysipelatous in its appearance. There was also marked enlargement of the glands.

The treatment consisted in the injection of glycerin and hot bathing, and antipyrin and aconite internally. The next day the erysipelatous swelling had increased, and it continued to increase for the next week, at the end of which time the buttocks, limbs and even the feet were involved. Phlyctenular ulcers were also present. From the lower extremities the erysipelatous inflammation also extended to the trunk and shoulders. At the end of ten days the temperature was still high, the infant pallid and exceedingly feeble.

The treatment now consisted in the use of

alcoholic stimulants, coffee, ether, peptone-wine, and injections of caffeine, with the object of supporting the patient. Nourishment was maintained by giving small quantities of the maternal milk or sterilized milk every two hours.

On the fifteenth day, in the morning, it was found that the patient was exceedingly ill, the pulse was irregular, and the local treatment consisted in applying resorcin with collodion. The temperature was also very high. At this time it was proposed to commence the treatment with Marmorek's serum, and an injection of three cubic centimeters of the serum was made into the left hypochondrium. Two hours afterwards the temperature had fallen about 2°, the erysipelatous area was paler, and had not extended at all. On the next day a second injection of five cubic centimeters of the serum was resorted to, and on that night a third injection of three cubic centimeters was given. These injections did not seem to cause the infant much pain. On the following day the fourth injection of four cubic centimeters was used. The general condition had now markedly improved. The child had an excellent night, and in every way seemed much better. Three hours after the injection of the serum the temperature approached normal. The pulse became less intermittent. On the next day a fifth injection of four cubic centimeters was given, and the day following still another one was resorted to. Notwithstanding these improvements four days after the injection had been taken the patient had a turn for the worse, refused to take nourishment, and finally died. No albumen was found in the urine during the course of the attack.

The author then asks to what cause the lack of success is due in this case, and considers that the excessive violence of the disease and the extreme youthfulness of the patient, combined with the excessive temperature, are the principal factors in having brought about the fatal result.

#### THE TREATMENT OF EXCESSIVE SWEATING.

An article upon this subject is published by GAUCHER in the *Journal des Praticiens* of October 23, 1897. He states that in general hyperidrosis the best remedies in his opinion for internal administration are tannin, agaricin, phosphate of lime, and atropine. These remedies produce good results in symptomatic sweating, but they are without effect in

idiopathic hyperidrosis. In the latter condition and in symptomatic sweating, also, the administration of tonics such as iron and quinine is very useful. In nervous patients some of the antispasmodics may be employed, such as the bromide of potassium or the valerianate of ammonium, or the extract of valerian, given in continuous doses over a considerable period of time. Among the local measures which are useful we find that vinegar or alcoholic lotions, frequently repeated, or hydrotherapy with the use of cold, are the best measures of relief. In the way of astringent lotions we may employ solutions of lime, tannin, borax, or acetate of lead in any one of the following forms:

- ℞ Tannin, 15 grains;  
Alcohol, 7 ounces.
- ℞ Alum, 150 grains;  
Water, 8 ounces.
- ℞ Borax, 150 grains;  
Water, 8 ounces.
- ℞ Liquor plumbi subacetatis, 3 drachms;  
Water, 8 ounces.

Where the sweating is confined to local areas, as in sweating of the feet, foot-baths extending over a period of as long as one-half to one hour are more efficacious than lotions, and a decoction of oak bark, or oak leaves, in which is dissolved five drachms of borax in each quart, may be used as a foot-bath. After the lotions or the baths the sweating part may be dusted with the following powder:

- ℞ Finely powdered chalk, 3 ounces;  
Salicylic acid, 30 to 45 grains.

Where sweating of the feet is troublesome, it is well to separate the toes by a small piece of lint in order to prevent maceration of the cutaneous surfaces. In some obstinate cases the application of a continuous current of electricity to the part which is involved does good. In those cases of excessive sweating in which there is also a marked odor, constituting the condition known as bromidrosis, the best treatment consists in alcoholic lotions, such as we have already named, and in addition the employment of some aromatic substance; thus bathing the feet with a solution made up of five drachms of borax to the liter of alcohol, to which is added a tablespoonful of tincture of benzoin, is useful. In other cases a one- to two-per-cent. solution of potassium permanganate or a weak solution of chloride of iron may be employed. The great inconvenience of these latter two methods is that the skin is stained. In other instances a five-per-cent. alcoholic solution of

naphthol, to which has been added a minute quantity of glycerin, may be applied to the feet. After these lotions have been used the part should be powdered with a mixture of talc and salicylic acid.

#### THE ABSORPTION OF IRON AND ITS HYPODERMIC ADMINISTRATION.

LEPINE (*La Semaine Médicale*, May 26, 1897) reviews the progress of knowledge since Kober and Bunge sought to prove in 1892 that inorganic salts of iron were not absorbed by the intestines. Kunkel has shown that after taking the inorganic salts by the mouth the percentage of iron rises in the whole body, especially in the liver. Since then iron has been repeatedly seen in microscopic sections on its way through the intestinal wall, and its eventual recovery in the feces of healthy animals has been explained. Thus Jacoby found that in animals, after hypodermic or intravenous injections of iron, very little is passed in the urine, while the greater part accumulates in the liver to be eliminated later by the intestinal mucous membrane, and probably to a less extent by the bile. Absorption from the intestine has therefore been proved. But the cases where the stomach is intolerant of iron are the very ones where it is most necessary. In these it must be given hypodermically. The latest researches show that the citrate of iron is as good as, if not superior to, any other preparation for the purpose. It appears in the urine half an hour after the injection, and is present for twenty-four hours, the maximum excretion taking place two to four hours after.

Gloevecke and others have had good results by injecting a ten-per-cent. solution into the buttocks or muscles of the back, using one cubic centimeter at a time. The injection causes a sharp pain which lasts for some time, but Lepine finds that by using more (2.5 cubic centimeters) of a weaker solution (four per cent.), this inconvenience disappears, and there is only slight tenderness. He relates a striking case of a woman, aged forty, who grew steadily worse with the usual treatment, including feeding with bone-marrow, until the hemoglobin fell to less than one-sixth of the normal, and she appeared at the point of death. Hypodermic injections of three to four cubic centimeters of the four-per-cent. solution were followed immediately by a marked improvement. Delirium ceased the day after the first injection,

and, though previously nothing was retained, four egg-flips were kept down. She had recovered a month later. In spite of the dose being in excess of that usually recommended, no bad effects were noted. There was polyuria, but no albumen. However, the common toxic symptoms produced by large doses of iron taken by the mouth, such as constipation, or sometimes diarrhea, nausea, and abdominal pain, are much more frequent after hypodermic injections. Thus a little over three grammes of the citrate when injected has produced vomiting, fever, and malaise, lasting several hours. Great caution is required if the kidneys are unsound, since even if they are healthy too concentrated injections may lead not only to the usual harmless polyuria, but to anuria and even hematuria and nephritis. The treatment is altogether contraindicated in anemic patients suffering from hepatic cirrhosis, epistaxis, hemorrhoids, metrorrhagia, etc., since it predisposes to hemorrhages. — *British Medical Journal*.

ON THE VALUE OF ARSENIC AND BELLADONNA IN THE TREATMENT OF CHOREA.

In a recent issue of the London *Lancet* OVEREND concludes an article on this topic in the following summary:

1. Belladonna appears to be most beneficial in recent cases, and its influence is sometimes very marked in severe forms.

2. In obviously rheumatic cases arsenic in large doses may be given a trial or may be combined with belladonna from the first. Belladonna may act by diminishing the excitability of the nerve centers or by imparting an improved tone to their vascular supply.

3. In the wards of a hospital it is perfectly justifiable to give to a child as much as thirty minims or more of the tincture of belladonna every four hours for ten days or even longer. Certain precautions are necessary. The patient should be kept in bed and the urine should be daily measured. Small doses of potassium acetate may be added if it becomes much diminished or if the eyelids show any puffiness. In one child nocturnal incontinence occurred, and the dose was lessened. The occurrence of the papular erythema, which leaves raised circular lumps for a time, does not necessitate any diminution of the dose. Dryness of the throat and swelling of the parotids, should they occur, are merely temporary. The in-

fluence of the belladonna makes itself felt after about four days. Should no visible improvement occur before the tenth day it would be useless to continue with it. But in eight severe cases treated belladonna was of benefit, and is certainly worthy of further trial. As soon as the movements become trivial or occur only during exertion, it is better to omit the belladonna, to commence massage of the affected muscles, and administer cod-liver oil and syrup of phosphate of iron or other tonics. The arsenic may be continued for a week or longer.

FURTHER OBSERVATIONS ON THE USE OF HYDROGEN DIOXIDE IN THE TREATMENT OF BLEPHARITIS MARGINALIS.

Dr. AYRES, the well known ophthalmologist of Cincinnati, records his experience with this substance in the *Lancet-Clinic* of October 23, 1897. Nearly four years ago the author published in the *Medical News*, of Philadelphia, a short article on the use of hydrogen dioxide in the treatment of blepharitis marginalis. He had then been using the remedy about a year in private and clinical practise, so that he can now say he has been using it constantly for five years, a period quite long enough to test its merits. His first impressions as to its value in this disease have not been disappointing; on the contrary, his expectations have been more than realized.

The author does not go into a discussion of the disease itself, but makes a few statements preliminary to what he has to say about its treatment. It is a well established fact that blepharitis is frequently associated with errors of refraction, hence it is necessary in all such cases to determine the degree of ametropia and correct it with suitable glasses. This should be the first step in every case, for two reasons: First, to relieve the asthenopia; and second, to assist by proper correcting lenses in the cure of the blepharitis. Very often there is no true asthenopia, only a burning sensation along the margin of the eyelids; but in these cases the refraction test should be made, and if even a slight error is developed it should be corrected. The correction of the ametropia will in itself help to cure the blepharitis.

Blepharitis assumes different types in different individuals. In some it is like a little dry scurf, which forms around the cilæ and causes but slight irritation; in others there are deep ulcers around the hair-bulbs, which

are painful. Again, it is like an eczema which forms on the edges of the eyelids, causing hairy crusts, which cover half the length of the ciliæ and mat them together. In the more severe types there is always more or less associated conjunctivitis. The disease is more frequently seen among the young, and especially among the strumous. In persons with fair hair and light complexion we see the most intractable cases.

If the disease be allowed to run its course unchecked there will be a gradual destruction and atrophy of the hair-bulbs from ulceration. Straggling and feeble hairs in some cases will grow out and curl down in contact with the cornea, exciting ulceration. In the inveterate cases there finally come loss of the ciliæ, thickening and redness of the edge of the lids, and ectropion.

Many remedies have been used in the treatment of this disease, and with success. The mercurial ointments have long been used, and are well adapted to some, but very irritating to others. Diachylon and zinc ointments are recommended. Silver nitrate and copper sulphate are used to touch the ulcers on the lid margins, and serve a very good purpose. As this is a disease which must be treated more at home than at the office, we want a remedy which can be readily used at home and which will aid us in quickly softening and easily removing the crusts and scales from the edges of the lids. Mothers and nurses at home are entrusted with the most important part of the treatment, and they find it a difficult, and sometimes an almost impossible, task to treat the struggling and rebellious children properly. The screams of the children deter them from carrying out instructions, which they are quite willing to execute.

Water, pure or rendered alkaline by the addition of bicarbonate of soda, will in time soften the crusts, but in the hydrogen dioxide we have a remedy which, by its chemic action, unites with and softens and dissolves the crusts.

There is no need to dwell upon the great value of  $H_2O_2$  as a disinfectant and antiseptic. Every one is quite familiar with its effects on pus and micro-pus virus and albuminoids generally. It has established a wide-spread reputation for efficiency on account of its many good and few objectionable features. It is neither toxic nor corrosive, as are carbolic acid and bichloride of mercury. It acts by oxidation. It does its work quietly and painlessly. It converts pus and virus

into inert matter. It cleanses diseased surfaces as thoroughly as would the stronger preparations, and yet is as harmless as aqua pura. Its effects recommend it especially in the treatment of the eye. At first the author used it in its ordinary strength, about twelve volumes, but he soon found this objectionable, for if by accident a drop came in contact with the conjunctiva it caused a sharp pain for a short time. He then reduced it about half with water, and found this accomplished the desired result and did not pain the eye. He applies it with a bit of absorbent cotton, which is dipped into the dioxide and rubbed along the lashes. This should be kept up until the specific oxidizing effect is seen on the scales or crusts, as will be evidenced by the bubbles.

The advantage of the dioxide is that it has a softening effect on crusts along the edge of the eyelid which water does not have. Applied in the strength the writer has directed, there will soon be seen the specific action of the medicine. A white line of bubbles will be seen along the edge and the crusts will seem to swell. Keep this up for a short time and the edges of the crusts will begin to separate. Then rub the lids dry with absorbent cotton and they will become partly detached. If they should prove to be very hard and dry, the dioxide will have to be used longer, allowing it more time to soak in. Then with a dressing probe or a scoop they can be lifted out without causing pain. Water will not accomplish this so easily and so quickly, as it does not so readily unite with or dissolve them.

There is a great advantage in using this remedy in children, for it greatly lessens the pain of the treatment. After being soaked the crusts can often be brushed off with a small bit of dry absorbent cotton.

In mild cases the peroxide will give more relief than any other remedy in the author's experience. In the severe cases with ulcerations of the margins of the lids and deep pits under the scabs, the peroxide has to be supplemented by the use of a solution of silver nitrate. This is applied to the ulcers on a cotton probe made by wrapping a small bit of cotton around a wooden toothpick. It is dipped into a two-per-cent. solution of silver nitrate and then pressed into the pits until the surface turns white. This must be repeated twice a day until the ulcers fill up, and then can be discontinued.

The author frequently finds cases where ointments of all kinds produce more or less

irritation, and sometimes cause an aggravation of the symptoms. In these cases the dioxide answers very well. The writer does not claim that it is a remedy which can or should be used alone. In mild cases it will accomplish all that any other remedy can. In the severe cases the ulceration of the lid margins should be treated by nitrate of silver or other remedies. Trimming of the lashes in children should be resorted to, especially where the crusts accumulate rapidly and are not properly removed by the parents at home.

The dioxide will always be a valuable adjunct to other rational measures which are resorted to for the relief of this obstinate disease. He has also found it very valuable in the treatment of the moist eczema which forms around the *alæ nasi* and behind the ears in strumous children. It destroys the pus, softens the scabs, and renders them easy of removal.

#### *THE MODERN MANAGEMENT OF DIPHTHERIA AND CROUP CASES.*

AUGUSTUS CAILLÉ in the *Post-Graduate* for October, 1897, gives valuable advice as to the treatment of diphtheria. After stating that the proper management of the nasopharynx in children and adults is one of the most important subjects in practical medicine, he goes on to say that the nasopharynx is the usual site of entrance of diphtheria, and to this locality the preventive measures must be directed. In a contribution to the proceedings of the New York Academy of Medicine in 1884, the writer showed that chronic nasal catarrh, adenoid vegetations, enlarged tonsils and carious teeth favor diphtheria infection, and that in the absence of such conditions the instillation of a weak salt or alkaline solution into the nose morning and evening will prevent diphtheria in those exposed or prone to contract it.

The general practitioner should see to it that in all children coming under his professional care, adenoids, if present, be removed by the post-nasal forceps and Gottstein's curette, that hypertrophic tonsils be resected, and carious temporary teeth be filled or extracted.

The nasopharyngeal toilet, as advised by the author, consists in the instillation into each nostril by means of an ordinary teaspoon a spoonful of salt water one-per-cent., or boric acid water two-per-cent., morning and evening (at bedtime and on rising), as

the children lie on their backs, with nose tilted up and mouth open. The liquid does not wash through at once; some of it remains in the various recesses of the nasal cavity, and is eventually sneezed out or swallowed. In this way putrescible matter and bacteria are washed away (mechanical antisepsis). Where additional chemical antiseptic action is desired a 1:5000 mercuric bichloride solution, or Labarraque's solution ten-per-cent., or a rose-colored permanganate of potassium solution, should be employed.

The nasopharyngeal toilet, carried out in the way described, is indicated for (1) all healthy children from one year up, who live in infected localities, and (2) for all healthy children directly exposed to diphtheria infection.

It is also the best method of local treatment in all cases of diphtheria, in which instances it should be resorted to every two hours; moreover, it is the most satisfactory local routine treatment in all cases in which diphtheria frequently sets in as a complication, *e.g.*, in scarlatina, measles, and pertussis; furthermore, it is a necessity before and after tonsillotomy and all operations on the nose and throat. This method is far superior to gargling, and the writer, after an experience of more than fifteen years with its use, again takes pleasure in recommending it on account of its great value and harmlessness. It has been tested in private practise and in institutions; many physicians have employed it; bacteriologists have reported upon its usefulness, and have shown that weak solutions are as efficacious as strong ones.

In many forms of reflex cough, also of tubercular origin, it is far superior to nauseating expectorant mixtures, and in all forms of febrile disease in which the nasal secretion becomes dry, crusty, or hardened, half a teaspoonful of salt water into each nostril affords much relief.

The nasopharyngeal toilet not alone does not provoke middle-ear accessory sinus complications, but according to the experience of the writer apparently prevents them.

Specific and direct immunity is secured for those exposed to diphtheria by means of antitoxin. The period of immunity varies from three to six weeks, which is sufficient for all practical purposes in times of epidemics or house infection. Aside from the reports which come to us from abroad, we have reliable reports from various hospitals for the treatment of children's diseases throughout

the country which go to prove the absolute value of antitoxin as an immunizing agent. The immunizing dose is 200 units, and all exposed children should receive this quantity.

*Antitoxin; Dosage; Indications.*—The treatment for diphtheritic inflammation consists in the early and proper administration of reliable antitoxin, supplemented by the nasopharyngeal toilet. The time for discussing the *pros* and *cons* of antitoxin treatment is past; the specific curative power of this remedial agent is an established fact. Behring's claim that if antitoxin be used early the mortality from diphtheria will not exceed five per cent. is borne out by the reports of competent clinicians all the world over. Opposition to anything so radically new as Behring's discovery is one of the associating features in the evolution of scientific medicine. Vaccination and antiseptic surgery stand in evidence of this fact. *Any practitioner who studies the collective investigation reports for 1896 and 1897, on antitoxin for diphtheria and croup in private practise, issued by the American Pediatric Society, and fails to use antitoxin because he "does not believe in it," should not be entrusted with the management of a case of diphtheria, and the practitioner who thinks a case is mild, and waits for severe symptoms before using antitoxin, utterly fails to grasp the situation, and will frequently be disappointed.* [Italics ours.—ED.]

Antitoxin is indicated in doses of 200 units for immunizing exposed persons, and in doses of from 1000 to 2000 units to combat the disease: 1000 units for very young children; 1500 units for older children; 2000 units in croup cases. It should be employed at the earliest possible moment, and the dose repeated the following day and subsequently as often as is necessary. The author has given 10,000 units in one week to a child nine months old, and has seen no ill results. The dosage is expressed in units, and not in the serum quantity; the preparation having the highest number of units in the least quantity of serum, and from an absolutely reliable source, is to be preferred.

The injections are made in any region where a fold of skin can be picked up—the skin, the hands of the physician and the syringe must be clean. Any syringe will answer, but the best syringe is one made entirely of glass, and now obtainable in the shops.

The writer also injects a curative dose of antitoxin in every case of scarlet fever com-

ing under his notice, because this disease is frequently complicated with diphtheria, and he also administers a curative dose in case of measles and whooping-cough if the throat shows the slightest appearance of a pseudo-membranous patch. It would appear rational to give an immunizing dose in puerperal cases, where a diphtheria case exists in the same house; also to children on whom an operation is to be done in the nose or throat, and where the culture test shows the presence of diphtheria bacilli without clinical symptoms. Antitoxin is also indicated in diphtheria of the eye, which is fortunately very rare. The more common croupous conjunctivitis is not to be confounded with eye diphtheria, in which the eyelids are phlegmonous and hard.

The antitoxin rash, which is noticed in a certain number of cases, has no very characteristic features and may readily be mistaken for scarlet fever or measles rash; its appearance is usually not heralded by a rise of temperature and increase of other symptoms.

As regards the combined use of antistreptococcic and antidiphtheritic serums in cases of mixed infection, no positive advice can be formulated at the present time.

The local treatment of diphtheria must be mild. Swabbing the throat in diphtheria is harmful, and should not be practised. Solutions used as gargles do not reach the nasopharynx; the spray is only to be employed in cases in which force need not be used, *e.g.*, in docile children. The best way to cleanse the nasopharynx is to pour the liquid into the nose from a spoon; if the nose is partly or almost completely stopped up, a blunt piston syringe, or a Davidson's or fountain syringe, must be employed. In septic cases the irrigation is best done as the children lie on the side, in order to avoid any sudden strain and collapse. For the majority of cases, instillation by means of a spoon will suffice. This may be done every hour or two and if necessary day and night, according to the severity of the case. If syringes are used the stream should be directed horizontally, and not upward. Syringes should not be used if bleeding follows each irrigation.

The following liquids may be employed: Permanganate of potash (rose-colored aqueous solution); mercuric bichloride in water, 1:10,000; salt water, teaspoonful to pint; lime water; alum water, five-per-cent.; Labarraque's solution in water, 1 to 20.

Peroxide of hydrogen has shown itself to be an active irritant in the hands of the

author, and aids the spread of diphtheria, and should therefore not be used in that disease.

Any of the above liquids may be used as a gargle when children are able to gargle. Excoriations at the angles of the mouth and at the nostrils usually heal under camphor ice.

Antitoxin, with mild local treatment and judicious stimulation, will suffice for ordinary cases seen in good time; but as cases will come under observation in which valuable time has been lost in temporizing with household remedies, the physician will not be spared the management of various complications which will now engage our attention.

The local antiseptic power of a teaspoonful of medicine, as it glides over the tongue and down the esophagus, is practically *nil*. The yellow chlorate of potassium and iron mixture, and the mercuric bichloride mixture, will not be necessary where antitoxin can be had, and should under no circumstances be given to a patient with an irritable stomach. As an aid to digestion the following mixture is efficacious:

B Liquid pepsin, 2 ounces;  
Acid. muriat. dilut.,  $\frac{1}{4}$  drachm.  
Teaspoonful four times a day.

In septic cases, five drops of the tincture of chloride of iron may be given every four hours.

Stimulants should be given as follows: Whiskey, American tokay wine, champagne, coffee, strychnine  $\frac{1}{10}$  grain, three times a day; camphor, one-half to one grain, three times a day; benzoate of sodium and caffeine, dose one to three grains, also subcutaneously dissolved in water; camphorated oil and ether, equal parts, five to fifteen drops subcutaneously. When the stomach is irritable, stimulating drugs can be given subcutaneously or per rectum.

High temperature can be reduced by cold and lukewarm sponge and tub baths. To give an antipyretic drug regularly every two to three hours is very bad practise; one or two doses in twenty-four hours, particularly at night, are serviceable. From three to ten grains of phenacetine with half a grain of caffeine or lactophenin with caffeine in the same dose may be given. Antipyrin is a safe antipyretic, and as it is soluble in water, from three to seven grains can be given per rectum. In cerebral unrest an ice-cap is advisable. Quinine should never be given as an antipyretic in any but malarial disease.

In cases of incessant vomiting, stop all internal medication and give only one to two drops tincture of iodine in sweetened peppermint water every hour or two, or wash out the stomach.

In many septic conditions a mild form of diarrhea may complicate matters. This can usually be checked, if necessary, by a diet of burnt flour gruel or corn-starch pap, and by omitting milk food for a time. Should this not suffice, five grains of tannic acid or tannin given with chocolate, or half a grain of acetate of lead with sugar of milk, or half a grain of camphor with one-fifth grain of Dover's powder, will check the diarrhea.

Albuminuria and nephritis are frequent complications of diphtheria. A stiff dose of calomel and jalap, and one or two warm baths a day to promote diaphoresis, will be the treatment in such conditions. In nephritis, with dropsy as a sequela of diphtheria, an infusion of digitalis may act as a diuretic by improving the circulation.

Initial convulsions indicate intense infection or nervous reflex irritability, for which an enema, a warm bath, and three grains hydrate of chloral and five grains potassium bromide are indicated, per os or per rectum. Terminal convulsions, indicating heart failure and cerebral inanition, give an unfavorable prognosis. A warm bath and stimulants are here indicated—five drops of camphorated oil and five drops of ether subcutaneously every few hours.

The tongue is sometimes so hard and dry that pain and difficulty in swallowing result. For this condition glycerin and rose water, equal parts, applied with a brush, affords relief.

Pseudo-membranous conjunctivitis is occasionally seen in severe diphtheria cases. This readily yields to ice compresses and the boric acid spray. In true diphtheria of the eye, in which the eyelids are much swollen and indurated, antitoxin must be used in large dose. Fortunately, as has already been said, this condition is very rare.

Otitis media, due to an extension of the septic process through the Eustachian tube, is frequently observed, but the earache is not nearly as intense as in ordinary otitis media, and rupture of the drumhead takes place readily. The ear should be cleansed with mercuric bichloride solution 1:5000, or a warm boric acid solution with cocaine, or menthol in sweet almond oil (one to four drachms) should be instilled.

Hemorrhage from sloughing of the tissues

is a very dangerous and distressing complication. If possible, the bleeding spot should be located by means of a strong light, and directly cauterized with the actual cautery, lunar caustic, chloride of zinc, alum solution, or antipyrin and tannin. The styptic preparations are not so applicable on account of the large grumous blood-clots which invariably form.

Phlegmon and induration of the tissues of the neck, with indistinct fluctuation of cervical lymph nodes, are best managed by a large incision through the entire dense and thick skin down to the glands. The latter are usually in a friable, spongy state, with little pus spots scattered through the tissue, and can readily be broken up by pushing a blunt director or dressing forceps through the capsule and sweeping it around in various directions in order to break up the necrotic tissue. Make one abscess cavity, which can readily be drained by means of iodoform or bichloride gauze under a moist dressing. The neighborhood of such a diphtheritic and gangrenous wound occasionally has an erysipelatous appearance, which usually subsides under the application of cold lead lotion.

The diet should consist of the following: Milk, vichy, matzoon, kumiss, beef peptonoids, corn-starch, custard, ice-water, cream, farina, cocoa, eggs, raw meat, burnt flour, soup, whiskey, California tokay, coffee, tea, punch, ice, champagne, pineapple juice, somatose.

The diet in diphtheria is of prime importance; the food should be nutritious and digestible.

Forced feeding is proper in exceptional cases, but it is well to remember that children with febrile and septic diseases have little desire for food, and that the stomach will resent all attempts at overfeeding. Somatose is an ideal soluble meat without taste or smell, and can be given with cocoa, milk, gruel, rice, etc.

For rectal alimentation inject a mixture of whiskey, egg yolk, beef peptonoids, warm water.

#### THE TREATMENT OF CARDIAC AFFECTIONS DEPENDENT UPON ARTERIO-SCLEROSIS.

In the *Journal des Praticiens* the following treatment for this condition is given:

The diet is carefully regulated and small quantities of meat are administered. In regard to vegetables, potatoes are to be avoided and green vegetables to be employed. In

regard to medicinal treatment the following potion may be employed for the purpose of increasing elimination of calcareous material: Bicarbonate of sodium  $2\frac{1}{2}$  drachms; neutralize this with a sufficient quantity of lactic acid and add lactic acid and simple syrup  $2\frac{1}{2}$  drachms, and distilled water 6 ounces. Take this quantity during a period of twenty-four hours. It is stated that the lactic acid will augment the elimination of calcareous materials and increase the quantity of the urine, and that under this treatment the patient will be relieved to a great extent of symptoms of cardiac dilatation or asthenia, his dyspnea, cyanosis, edema, and attacks of angina.

#### THE ABORTIVE TREATMENT OF INFLUENZA BY CALOMEL.

In the *Therapeutische Monatshefte* for October, 1897, FRUDENTHAL expresses the belief that calomel is an exceedingly useful drug in the early stages of an attack of influenza. The dose which he gives amounts to two grains twice a day to adults, or one grain three or four times a day. In infants smaller doses are given according to age. He asserts that the effects of this treatment are remarkable. In a few hours he obtains a great fall of temperature and the disappearance of the neuralgic pains and loss of appetite. The advantage of this treatment he thinks is that it is inoffensive, and admits of general employment. He believes that a cure can usually be produced by the third day.

#### SUCCESSFUL TREATMENT OF CIRCUMSCRIBED TRAUMATIC ANEURISM OF THE RIGHT INTERNAL CAROTID ARTERY WITHIN THE CRANIUM BY MEANS OF LIGATURE OF THE COMMON CAROTID.

HINDE (*Journal of the American Medical Association*, December 4, 1897) has reported the case of a Chinaman, thirty-six years old, who eighteen months before coming under observation had been felled to the sidewalk by a blow upon the shoulder, striking the occiput in his fall. The man at once arose and walked home, a distance of a block, and lay down for about ten minutes. On the following day he felt well enough to resume his work. Some time afterward both eyes began to redden, the right one in greater degree, and in a short time it was noticed that the right eyeball commenced to bulge forward. The redness and the exophthalmus



on the right side steadily increased until the patient came under observation, when the palpebral, conjunctival, subconjunctival and anterior ciliary veins of the right eye were found to be greatly enlarged and tortuous. No pulsation could, however, be detected in any of these vessels, and none on light palpation with the finger-tips applied to the eyeball. The motility of the globe was preserved, except that in attempts at abduction it halted at a point slightly beyond the mid-position. The reflexes of the right pupil were enfeebled. The ophthalmoscope disclosed enlargement and tortuosity of the retinal veins, but an absence of pulsation. The arteries were of normal size and course. Both arteries and veins, especially on the surface of the disk, were marked by white lines along their walls, indicative of perivasculitis. Disk, retina and choroid were normal in appearance. The veins of the left eye were somewhat enlarged throughout, but presented otherwise nothing abnormal. The sensibility of the right cornea was less acute than that of the left. The visual fields were alike and normal. The acuity of vision was slightly greater on the left than on the right, but fairly good on both sides. On placing the cup of a stethoscope over the closed right eye, a loud blowing bruit or murmur was heard synchronous with the heart beat, and an intermittence of the heart's pulsation from six to eight times per minute was readily detected. The same conditions, in slighter degree, were present over the right temporal region, and in still slighter degree in the left temporal region. In all of these situations the aneurismal sound was greatly increased when the patient stooped forward. It disappeared completely on digital compression of the right common carotid artery in the neck. On further inquiry it was learned that the patient became conscious of a noise in the head some six or seven days after his fall, and that it had grown steadily louder. The conclusion was reached that an aneurism had formed on the internal carotid artery within the cranium, perhaps secondary to fracture of one of the bones at the base, at a point where the vessel passes on the side of the body of the sphenoid bone between the layers of the dura mater and in immediate proximity to the cavernous sinus; compressing the latter and preventing the return of the venous blood from the contents of the right orbit, but not affecting the arterial supply; compressing the trunk of the sixth nerve, and in slighter degree also the

ophthalmic division of the fifth nerve. To remove the possibility of syphiloma of the brain, large doses of potassium iodide were administered for six weeks, without improvement. Operation was therefore advised, and it having been agreed to, the right common carotid artery was occluded in the neck with two ligatures, one-half inch apart. The immediate result of the operation was a complete cessation of the bruit, with increase in the exophthalmus, which, however, subsequently receded. Under treatment with the faradic current the paresis of the right external rectus muscle and diplopia that had developed were greatly improved. The ultimate result was entirely satisfactory, the patient being freed from all his previous symptoms.—*Medical Record*, Dec. 18, 1897.

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ON THE USE OF THE GIGLI WIRE SAW  
TO OBTAIN ACCESS TO THE BRAIN.

According to KEEN (*Philadelphia Medical Journal*, Jan. 1, 1898) the Gigli saw has the following distinct advantages: It is simple in construction, consisting of a bit of roughened steel wire about 35 centimeters long and about 0.5 millimeters or more in diameter, with a loop at each end. Both the diameter and length vary somewhat in different sizes.

The method of using the saw is by making two or more trephine openings; then, after separating the dura from the skull, a piece of silk is passed through by means of a probe, and by the silk the saw is drawn under the skull. The handles are then attached, and by moving the saw back and forth just like the old chain saw, the skull is cut through.

In a case operated upon by the writer in sawing three sides of the osteoplastic flap, he was able at will to bevel the edge in such a way that when the flap was replaced it would not sink into the cavity of the skull and press on the brain, even though along the middle line he was obliged to gnaw away the bone at each end. By leaving one centimeter of the beveled surface in the middle, or indeed at any point, the bone is supported perfectly well. There is practically no loss of bony tissue, as the saw is so thin.

Another advantage claimed is that when the operator had completely sawed through three sides of the quadrilateral osteoplastic flap which he wished to turn down, the skull being very thick, it would have been somewhat difficult to break the bone along the fourth side, and the edges of the bone would have been very irregular and with short

spicules attached. These, if care is not taken, might prove a source of trouble to the dura when the bone was replaced. By passing the Gigli saw under the inner surface through the two openings, he was able at the base to saw half through the thickness of the skull from the inside and then break the outer table with but little exertion and a quite regular fracture.

The saw avoids the jarring of the skull caused by the hammer when the chisel is used. This is a theoretical rather than a practical advantage. The chisel has been used in a good many cases now, and no case of injury resulted from concussion of the hammer.

When one of the Gigli saws has been used it curls up and is useless. Besides this, the roughened points have been so worn away that if the skull was very thick it would probably require a second saw. One of the saws broke when the writer had been using it some little time, but all that was necessary was to withdraw the broken ends and use a new saw.

There was some anxiety while cutting the long side of the quadrilateral lest the saw, as it made the chord of an arc, the arc being the curved under surface of the skull, might cut into, or otherwise injure, the dura mater. Much gratification was felt when the flap was turned down to see that not the slightest injury had been inflicted upon the dura.

#### THE CONSERVATIVE SURGICAL TREATMENT OF UTERINE FIBROIDS.

MONTGOMERY in the *International Journal of Surgery* for January, 1898, states that hysterectomy, vaginal or abdominal, may justly be considered conservative when performed for conditions which must otherwise imperil life or health; but in this paper he uses the term in a higher sense—the conservation of function in organs which are crippled unless treated, and which have until recently been regarded as conditions justifying their sacrifice.

There are, however, many cases with extensive fibroid formations, in which by the exercise of care the growths can be removed, leaving a severely lacerated organ, which with proper management may be restored to a functioning organ capable of affording hope for, if not actual, future progeny.

The growths may be attacked either through the vagina or by way of the abdomen.

The truly conservative procedures *per vaginam* are:

1. Dilatation and curettement of the uterine canal.
2. Splitting of the cervix.
3. Incision of the tumor capsule.
4. Removal of the tumor after twisting or cutting its pedicle.
5. Arrest of blood-supply by ligation of vessels.
6. Enucleation.
7. Morcellation.

The first three procedures, unless a part of a general plan, are merely palliative. Dilatation of the cervix by laminaria tents affords an opportunity for digital exploration of the cavity and the determination of the size, situation and relation of intramural and interstitial growths. By decreasing the resistance of the cervix it promotes the more rapid extrusion of the tumor. The same effect to a more marked degree is accomplished by splitting the cervix. This is not applicable for a tentative procedure, unless the growth is already making pressure upon, and has partially taken up, the uterine neck.

The influence of curettement is confined to its palliative effect in the arrest of hemorrhage. For this purpose it is especially valuable, and produces such changes in the diseased uterine mucosa that hemorrhage may be kept in abeyance for a considerable period. It should not be employed when the tumor is a polypus, merely attached by a pedicle. Such cases should be treated by division of the pedicle through torsion or incision and delivery of the growth. This plan of treatment is preferable whenever the pedunculated growth can be reached after dilatation or splitting of the cervix. The growth should be seized by strong, preferably four-pronged, vulsella, and rotated two or three times until its pedicle is torn off, when the delivery can be accomplished by traction. The latter should not be employed until it is certain the pedicle is loosened, otherwise inversion might readily be produced.

Incision of the tumor capsule and partial enucleation of the growth is of particular advantage in controlling hemorrhage. The divided vessels retract and become occluded by clots.

It facilitates the extrusion and conversion of interstitial or mural growths into the intramural. The resistance of the tissue intervening between the growth and the uterine cavity is withdrawn, and in some cases the extrusion is rapid.

It is not absolutely free from danger; the premature removal of resistance may cause so rapid extrusion that the blood-supply is arrested, and it becomes a sloughing fibroid, greatly increasing the danger to the patient.

Cutting off the blood-supply by ligation of the uterine arteries was advocated in 1890 and first performed by Martin in 1892. As done by Martin, it is not only a ligation of the uterine arteries, but the whole base of the broad ligament is secured in order to occlude not only the main channel of the uterine artery, but its collateral branches. In very vascular growths, he also burrows up and secures the ovarian artery upon one side. Naturally the best criterion of the value of any procedure is determined by practical experience. In thirteen cases reported by Martin, upon whom the operation had been done more than a year, the tumor entirely disappeared in several; in others it decreased in size; while in three the hemorrhage was but slightly improved.

The advantages of the procedure are that it can be done without opening the peritoneal cavity and thus subjecting the patient to a dangerous operation. The absence of an external incision and the slight peril of the operation render it more acceptable to the patient.

Among the disadvantages are: the possibility of ligating or injuring the ureter; the difficulty sometimes experienced in reaching the uterine arteries; the possibility of securing so effective an arrest of blood-supply that the tumor, incompletely nourished, undergoes caries or necrosis, when the danger is greatly enhanced.

The complete absorption of a mature fibroid, or one which encroaches largely upon the uterine cavity, must be doubtful. The retention of a portion of such a growth must be a menace, should the patient become pregnant, as it may be a source of dystocia and the increased nutrition lead to its development. The influence of the reduced supply of blood to the uterus upon the subsequent possibility of conception and ability of the organ to nourish the product to full term is worthy of consideration.

Enucleation of growths which have been pushed into the uterus, forming sessile tumors, when the uterine canal has been partially or completely dilated, has long been practised. When the tumors were of considerable size it has been supplemented by removal piecemeal or morcellation.

What the author particularly wishes to

impress is that by a combination of these methods we may succeed in removing growths, and leave a functioning uterus in cases where it has formerly been deemed necessary to sacrifice the organ.

Sessile, and particularly interstitial, growths situated in the body of the uterus, with a long undilated cervix, have been regarded as either requiring long-continued medical treatment or the sacrifice of the body of the uterus. The former means months or even years of invalidism before the tumor can be so extruded as to render it readily accessible; the latter, the sacrifice of the fondest hopes and the highest aspirations of a woman's life. If such a growth is found in woman near the climacteric, that plan of treatment should be employed which affords relief with the least discomfort and danger; but in a young woman the retention of function justifies greater risk. The procedure the writer suggests is a combination of the various methods already discussed:

First, efficient dilatation of the uterus to at least permit the exploration of its entire cavity with the finger. This dilatation may be accomplished with the repeated use of laminaria tents, or Vulliet's method with gauze packing. With either procedure, the vagina should be rendered as nearly sterile as possible. This is best accomplished by exposing the cervix with retractors, and cleansing the vagina and cervix by repeated swabbing with a formalin solution (1 to 1000); hollow laminaria tents which have been soaked in a saturated solution of iodoform in ether are introduced, or a number of small ones. They are kept in place by a tampon of iodoform gauze. The tents may remain from twelve to twenty-four hours. Unless the cervical canal is very narrow, the dilatation secured by one set of tents will be sufficient for the purpose of the investigation. If it cannot be satisfactorily accomplished, the canal should again be filled with tents, previously taking the precaution to cleanse the vagina and irrigate the uterus with the formalin solution. If the operator is unprepared to proceed to removal of the mass, the dilatation may be retained by packing the uterus firmly with iodoform gauze.

The next procedure will depend upon the size, situation and accessibility of the growth. If well within the cavity, it can be rendered more accessible by splitting the cervix up to or even beyond the internal os. The portion incised will depend upon the situation of the growth. Near the fundus or in a lateral wall

it will probably be more readily exposed by lateral incisions. The anterior and posterior lips are each seized with a double tenaculum and drawn apart while the lateral incisions are made with a bistoury. Care must be exercised not to injure the ureters, which will probably be caused to approach the cervix by the wide eversion of the lips. The incisions do not enter the peritoneal cavity, but permit the uterus to be drawn into the everted broad ligaments as the incision may be carried into the lateral fornices, always keeping in mind the proximity of the ureters. Bleeding from the circular artery or other branches of the uterine artery is temporarily controlled by hemostatic forceps.

In sessile or mural growths of the anterior or posterior wall, not unfrequently the tumor may be more readily exposed through an anterior incision. The dissection of the bladder from the uterus will permit of an extensive exposure. Having made the incision the margins of the wound should be retracted by sutures of heavy silk, as less likely to injure the walls than the double tenacula. Upon exposure the capsule of the tumor should be incised. In mural growths this incision may bifurcate laterally, permitting the overlying uterine tissue to be dissected in two flaps. A firm grasp of the exposed tumor is made, and it is drawn upon while the tissues are pushed off with a blunt dissector, so curved at its end that it will closely hug the surface of the tumor. Such an instrument is preferable to the finger for dissection, as it occupies less space, will do less injury, and is not so likely to carry infection. If the tumor is too large to permit of its complete enucleation, it can be reduced by morcellation. As enucleation progresses it may be facilitated by rotation of the tumor, thus twisting it out of its bed. After the removal of the tumor the parts should be thoroughly irrigated, the torn mucous membrane adjusted, and the cavity packed with a long strip of iodoform gauze, the end of which projects from the cervix. The incised surfaces are accurately brought together with sutures, exercising care that the sutures do not include the protruding gauze. After closure of the incision in front of the uterus, the peritoneal and vaginal surfaces should be sutured to it, placing a gauze drain through the latter.

If the lateral fornices of the vagina have been opened and the cellular tissue much disturbed, a gauze drain should be inserted on each side. The gauze drains should be

removed between the third and fifth day, according to the patient's progress. For the ready accomplishment of this operation through the vagina, the uterus must be movable, the tumor not larger than the fist, and the vagina moderately dilated or dilatable.

Where the conditions are unfavorable the growth must be attacked through an abdominal incision. The conservative abdominal procedures are: Ligation of ovarian arteries; myomectomy; enucleation.

The arrest of blood-supply by ligation of the ovarian arteries and anastomosis of ovarian and uterine arteries, as advocated by Robinson, has been demonstrated as capable of reducing the size of fibroid growths, but is open to some of the objections brought against vaginal ligation. A serious operation has been performed which is not certain to produce a favorable result. The tumor remains to undergo degenerative processes or take on new life and development.

Myomectomy has long been recognized as a proper procedure in the treatment of pedunculated extramural growths.

Enucleation of fibroid growths through the peritoneum has been exceptionally practised. Kelly recently read a paper advocating it before the American Medical Association. Chevrier in 1892 reported one hundred and twenty-five cases thus treated with a mortality of sixteen per cent. He cautions against opening the uterine cavity. Is there any reason why the operator should fear to follow it, if necessary, even into the uterine cavity? The wound in the remaining portion of the uterus can be readily sutured, and with just as reasonable hope of success as in the suture of the incision of a Cæsarian section.

In young women, then, we would advocate the enucleation of fibroid growths, even so large as to require the abdomen to be opened, whenever the condition of the ovaries and tubes presents no barrier to the hope for complete restoration of the functions of the pelvic organs. The capsule of the tumor should be incised and the enucleation accomplished with the use of the metal dissector; bleeding vessels should be secured with hemostats, and where the uterus is occupied by a number of growths, the cavity should be temporarily packed with gauze held in place by a suture, otherwise it may become lost in the abdomen and be overlooked. Mural or even intramural tumors should not be considered as contraindicating this method of procedure. In such cases, however, it may

be a question as to the wisdom of drainage by gauze through the vagina. Such practise would necessitate previous sterilization of the vagina. After the enucleation of the growths the cavity should be carefully dried, where the uterine cavity has been entered, the mucous surfaces adjusted and the walls apposed, using for this purpose sterilized catgut.

*A NEW INCISION FOR ARTHRECTOMY,  
RESECTION, AND FOR REDUCTION  
OF IRREDUCIBLE DISLOCATION  
OF THE SHOULDER-JOINT.*

In the initial number of the *Philadelphia Medical Journal* SENN brings forward the incision for arthrectomy given below. The modern operations for tuberculosis of joints requiring arthrectomy or resection are characterized by thorough removal of the diseased tissue through incisions which afford free access to the joint, and that do not inflict unnecessary damage to important muscles, vessels, and nerves. The ultimate success of such operations depends largely upon the thoroughness with which they are performed, the care exercised in the preservation of healthy tissue, and the prevention of injury to important structures involved at the site of operation. The incisions which are being devised for resection of the different joints have these two objects in view, and the recent improvements in the surgery of joints are largely due to a more perfect technique in performing the operations. The success that has attended the open method in the reduction of irreducible dislocations has added a new impulse to this department of surgery. Attempts to reduce old dislocations of the shoulder-joint have, in the hands of the most careful and competent surgeons, frequently terminated in disaster, so that the surgeon of to-day has learned caution, and is more inclined to remove the obstacles to reduction by a safe and clean dissection than by brute force.

The object of this paper is to describe a new incision for exposing the shoulder-joint for different indications. Senn then gives a retrospective view of the different incisions which have been devised from the time the first excision of the shoulder-joint was made until the present. The incision that he has devised has the great advantage over Bardeheuer's that the scar resulting from the operation is well protected by the prominence formed by the shoulder-joint, and at the same time secures free access to every part of the

shoulder-joint and its immediate vicinity. The external incision is made so as to form an oval cutaneous flap, which is turned upward, exposing the upper half of the deltoid muscle. It is commenced over the coracoid process, and is carried downward and outward in a gentle curve as far as the middle of the deltoid muscle, when it is continued in a similar curve upward and backward as far as the posterior border of the axillary space on the same level where it was commenced—that is, a point opposite the coracoid. The semilunar flap is dissected up as far as the base of the acromion process and reflected. The acromion process is detached with a saw and turned downward, with the deltoid muscle attached. The capsule of the joint is now freely exposed.

If the operation is performed for an irreducible dislocation of the shoulder-joint, the head of the humerus can now be located; the cause of resistance to reduction is sought for and removed, or corrected when the reduction can be accomplished by direct means, or by direct measures and manipulation. If the operation has for its object the removal of diseased tissue, the capsule is opened and the interior of the joint subjected to a careful examination, to determine the extent of the operation. If the disease is limited to the soft structures a complete arthrectomy can be performed without sacrificing any portion of the bony constituents of the joint by dislocating the head of the humerus in different directions for the purpose of rendering the entire capsule accessible to the dissecting forceps, knife, and scissors. If the head of the humerus is sufficiently diseased to indicate a typical resection, it should be removed as a preliminary step to the subsequent arthrectomy. The glenoid cavity is readily accessible, and should be dealt with in accordance with the pathologic conditions present. After the removal of all diseased tissue, and proper preparation of the wound, the acromion process is replaced and held in position by two or three strong catgut sutures. Silver wire is seldom required in suturing a temporarily detached bony prominence in operations upon the different joints. The catgut sutures hold the fragment long enough in place for bony union to occur. Senn very rarely drills the bone-ends, as the sutures gain a sufficiently strong hold by including the periosteum and the paraperiosteal structures. In operating upon the shoulder-joint for disease, through-tubular or capillary drainage should be es-

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tablished and continued for two or three days. The divided portion of the deltoid muscle is sutured separately with catgut, when the cutaneous flap is brought down in position and sutured in the usual manner.

In operations for irreducible dislocation drainage is not required, and primary healing of the deep and superficial wounds should be aimed at by careful suturing. After applying a copious hygroscopic aseptic dressing, the arm should be immobilized against the side of the chest with a few turns of the plaster-of Paris bandage. The operation as described, undertaken for the reduction of an irreducible dislocation, arthrectomy or resection for disease of the joint, does not involve any of the important tendons, muscles, vessels, or nerves, and for this reason a good functional result may be confidently expected.

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*A CASE OF STRANGULATION OF THE ILEUM BY PASSAGE THROUGH A CONGENITAL MESENTERIC HOLE; OPERATION; RECOVERY.*

J. STANLEY KELLETT SMITH reports a case under this heading in *The Lancet* of October 30, 1897. It is as follows:

A girl, aged fifteen years, was seized, while walking in the street on the afternoon of June 23, 1897, with violent abdominal pains, quickly followed by persistent vomiting. Mr. Bassett Jones, of Aberystwith, who saw the girl the next morning, reported on her condition then as follows: "The patient complained of severe pain referred to the umbilical region; the pain was continuous, but accompanied with paroxysmal exacerbations about every ten minutes, during which the patient suffered great agony. The tongue was furred. The pulse was 90, sharp and small; the respirations were 20; and the temperature was 98.2° F. The abdomen was flaccid and flat, with the walls moving on respiration; there was no local swelling to be seen. It was resonant on percussion, but not tympanitic; there was a small area of dulness in the right iliac fossa, over which there was some tenderness on pressure. Palpation revealed nothing except a sense of resistance over the above mentioned area of dulness. There was no passage of flatus or feces. Vomiting was frequent and of a bilious character; the act was preceded by much nausea, and the stomach emptied itself without much apparent effort. Rectal examination revealed only the presence of small

scybalæ." The lower bowel was emptied by enemata and everything that could be suggested in the way of palliative treatment was tried, but without relief to the symptoms.

The author saw the patient in consultation on June 27, four days after the onset of the illness. Intestinal obstruction had remained complete, and she was then in a state of great exhaustion. The pulse was 140 and of very unpromising character; the respirations were 32. The abdomen was tympanitic, except a small patch of dulness in the right iliac region, and over this patch any pressure upon palpation was strongly resented by the muscles of the abdominal wall. When he saw her vomiting had just taken place, the ejected matter consisting of diluted bile with particles of curd of the milk which had been given in small quantity as food. There was no suspicion of fecal odor.

Operation was advised and immediately carried out. The abdomen was opened from the umbilicus to the pubes. Coils of distended and congested small intestine bulged through the wound, and the escape of these was encouraged until the disposition of the mesentery could be comfortably made out. The gut was then carefully drawn from the abdominal cavity, proceeding always downwards, until the lower part of the ileum was reached, tender manipulation being here necessary owing to the greatly increased congestion of the bowel. The cause of the mischief was found in the shape of a hole in the lower part of the mesentery, pyriform in shape, measuring some two and one-half inches by two inches, with its larger end close to the mesenteric attachment of a small loop of bowel, which, taking its upper and lower limits as fixed points, had swung itself through the hole and thus become strangulated. The parts were judged capable of recovery and so were restored to normal position, recurrence of the accident being guarded against by closure of the aperture. The exposed intestines were then washed with weak perchloride solution and replaced in the abdominal cavity with some difficulty but without the necessity of puncture for gas drainage. The total time of operation occupied thirty-five minutes. Recovery was uninterrupted. Flatus passed on the day following the operation, and the bowels were voluntarily moved on the fourth and subsequent days.

Holes may occur in the mesentery as the result of disease, of injury, or of congenital malformation. The absence of any sign of



previous disease or injury and the negative history thereof, the smooth, thickened margin of the aperture, its size and the regularity of its outline, and especially its situation in the lower part of the mesentery, at the spot where such developmental deficiencies most frequently occur, lead the author to regard this case as a typical example of a congenital mesenteric foramen.

#### SECRETION NEUROSIS OF THE COLON.

In *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases* for January, 1898, BYRON ROBINSON discusses this subject and reaches the following results:

1. The above disease of the colon should be termed secretion neurosis and enteritis. The first is of neurotic origin and course.
2. Both secretion neurosis and enteritis may coexist.
3. Secretion neurosis of the colon occurs chiefly in neurotic females (eighty per cent.).
4. It is closely associated with genital disease.
5. It is frequently preceded by constipation (a neurosis of the fecal reservoir or of the inferior mesenteric ganglion).
6. The continuation of the disease is partly due to an irritable, vicious habit of excessive epithelial activity.
7. The disease is characterized by colicky pains, with the evacuation of mucous masses.
8. It is not fatal, variable and erratic in attacks, with impossible prognosis as to time.
9. Microscopically the evacuations appear as membranous, yellowish-white masses of mucus.
10. Microscopically one sees hyaline bodies, cylindrical epithelium, cholesterine crystals, triple phosphates, round cells, various kinds of micro-organisms, and pigment.
11. Chemically the evacuations consist of mucin and albuminous substance.
12. Secretion neurosis of the colon is comparable to the secretion neurosis of the endometrium (membranous dysmenorrhea) or bronchial croup.
13. Secretion neurosis of the colon appears to be limited chiefly to the part of the colon supplied by the inferior mesenteric ganglion—i.e., to the fecal reservoir (the left half of the transverse colon, the descending colon, the sigmoid, and rectum).
14. It is a disease of the sympathetic secretory nerves, and is analogous to the disease of the motor and sensory nerves of the viscera.

15. Its treatment consists in removing the neurosis, which lies in the front ground, and regulating the secretion, which lies in the background.

16. Three views exist as to the above disease, which certainly embrace more than one pathologic process, viz.: (a) That the disease is enteritis (catarrh); (b) that it is simply excessive secretion of mucus (colica mucosa); (c) that it is a secretion neurosis of the colon (nervous).

#### THE APPLICATION OF HOT WATER IN SURGERY.

BOYCE (*Atlantic Medical Weekly*, Jan. 1, 1898) in an interesting contribution to this subject reminds us that a good deal of ingenuity and research has been expended in devising, for laboratory use, a normal salt solution—that is, an exact chemical solution in which each cell shall have its greatest physiological activity. It is a little surprising that the advanced surgeon, ready enough to avail himself of laboratory work in most other directions, has as yet done nothing in this. Its importance may be in some degree appreciated by those who have followed Schleich's study of the varying effects which follow from slight differences in the saline density of solutions used in inducing anesthesia by the infiltration method. The abdominal surgeons long ago learned that the best method of securing asepsis was not by indiscriminate poisoning, but by securing for the vital elements of the peritoneum the fairest possible field in their contest with bacteria and bacterial products. But when other tissues are concerned we are apt to forget that they are not mere dead surfaces, nor do we always deal with them with a full appreciation of their biological properties.

These considerations are, however, of merely speculative interest until they shall have been thoroughly worked out for us and given a clinical application by men whose perfect command of present methods has given them the right to experiment. For the present those of us who are called on in emergency will content ourselves with approximation to a normal salt solution as is furnished by a six-tenths per cent. solution of sodium chloride. A teaspoonful of ordinary table salt is always within reach; dissolved in a quart of hot water it forms a solution safe even for intravenous injections.

Premising, then, that the water shall be freshly boiled and of such a saline density as

is most acceptable to the tissues, let us inquire what are its physiological effects. One hundred and ten degrees Fahrenheit is about the maximum temperature at which the whole body can be immersed with comfort, but when heat is to be applied to a limited portion of the skin higher temperatures can be borne. Thus, while 120° F. would perhaps be the limit for the immersion of the hand or foot, 140° F. is not particularly painful when applied to a limited area. At 150° F. the pain becomes quite severe and the erythema produced is of several minutes' duration. There is, however, no blistering, nor evidence of inflammatory reaction. It is a matter of common observation that the deeper tissues of the wound are less sensitive, and will bear a higher temperature than the skin edges. At 159° F. coagulation of proteids and consequent destruction of vital activity is produced.

The effect of the application of these high temperatures varies greatly according to the length of the exposure. At first the vessels are entirely relaxed; the part is congested, red, swollen, and soggy; its superficial veins are distended and tortuous, its lymph spaces filled with fluid. In a short time, however, this picture is changed. The part becomes pale, dry, and shriveled, drained of fluid, both in blood-vessels and lymph space. This reduction of congestion, seen in pathological conditions as well as normal, is perhaps the most important surgical application of moist heat. The gynecologist makes most extensive use of it with his treatment of turgid pelvic viscera by prolonged hot douching.

Quite lately there has been introduced a treatment for gonorrhea by prolonged irrigation of the urethra with very hot water. The fact that a very small quantity of permanganate of potassium is dissolved in the water probably contributes but little to the success of this method of treatment.

A class of cases in which the value of the hot application has been overlooked is the very common one of joint sprains, particularly those of the ankle. A sprained part immersed in water heated up to the limit of endurance at first throbs and burns most painfully, but soon, in twenty minutes to an hour, its swelling and tenderness lessen, the part becomes more movable, and comfort is restored. The dependent position rendered necessary for immersion is a disadvantage; in the intervals of application the part should be elevated.

This method of treatment of a sprain will

probably never attain great popularity, for it cannot afford such instantaneous relief of pain and disability as does the method by strapping. The delight and gratitude of a patient whose sprained ankle has been properly compressed and supported is something not easy for a physician to forego, yet the author believes that the immediate relief is at the expense of the ultimate strength of the part, and that if the profession would adopt a different line of treatment, we would hear less of ankles not to be depended upon for walking on level ground and of shoulder-joints that go out on slightest provocation.

Another use of continued hot applications, in promoting suppurative processes, is now more honored in the breach than in the observance. With the passing away of the "laudable" character of pus, has passed also all our laudation for the poultice. Yet the septic character which was incidental to the old-fashioned poultice should not blind us to the value of its essential elements—heat and moisture. The same effects are today secured by continued immersion in cases where large sloughs are to be separated. This method prevents obvious inconveniences which restrict its application to the more serious cases. A moist dressing, consisting of antiseptic gauze applied dripping out of very hot water, covered with a heavy layer of flannel to retain heat, and this again with oiled muslin or rubber tissue to retain moisture, constitutes a clean poultice of great value in many minor cases. The author refers to such cases as abscess, cellulitis, lacerated wounds, etc., infected when we first see them, where, in spite of free incision, and with no apparent mechanical obstruction, drainage is yet not free when the tissues about the wound are swollen, infiltrated, red, and painful. One application of a dressing such as described above will do more for such a case than days of antiseptic cleansing.

Next we come to the use of hot water as a hemostatic. For this purpose it is applied at a sufficiently high temperature to clot the blood in the vessels back to their trunks, and to cover the wound with a peculiar dry glaze. This effect is extremely useful in drying up the field of operation, allowing us to distinguish one tissue from another where a moment before was one uniform surface, red and oozing.

An extended series of cases where the tip of the finger had been sliced off with a sharp knife, leaving the exquisitely tender pulp exposed in the wound and spouting

blood, enabled the author to demonstrate the superiority of hot water to other agents, such as acetanilid, peroxide of hydrogen, alum, etc., which are said to control capillary hemorrhage without interfering with healing; and the application of heat in this manner seemed to promote in no small degree aseptic healing, which in this case was by scabbing. So manifest was this effect as to suggest the possibility of sterilizing wounds by moist heat.

We know that the ordinary pyogenic bacteria are not extremely tenacious of life, that they are destroyed, when moist, at a temperature not much above  $140^{\circ}$  F., while the tissues will stand without disintegration a temperature of  $150^{\circ}$  or more. So it seems probable that by the application of such a degree of heat as is within the limits of safety we may at least exert an inhibiting effect on the activity of the pyogenic organisms sufficient to give the tissues the advantage in that struggle upon which clinical asepsis always depends.

#### TREATMENT OF COLLES' FRACTURE.

EDWARD A. TRACY (*Journal of the American Medical Association*, Nov. 20, 1897), speaking on the subject of the treatment of Colles' fracture, says that since the recognition by Colles of the real nature of this injury, there had been a marked tendency till within recent years to overtreat it, with more or less baneful results. Sir Astley Cooper advised that four or five weeks be let elapse before passive motion in the aged be attempted. He remarked that recovery is slow, it sometimes being six months before the finger motions were restored. Agnew, Bryant, Moullin, Walshe and McClelland all recognize that the stiffness of the fingers and wrist is due to the fibrinous exudations around the tendon sheaths about the seat of the fracture. Bryant states that passive movements ought to be employed by the surgeon at an earlier period than has been wont; but that time he does not specify.

Moullin advises passive motion of the fingers from the first day, stating that this generally prevents stiffness of them. With the wrist, he states, it is generally more difficult (to prevent stiffness), "but on several occasions the author has begun gentle manipulations on the fourth or fifth day with excellent results." Tracy believes that Moullin's very definite instruction in regard to passive movements of the fingers to be begun at once, and of the wrist-joint on the

fourth or fifth day, is good practise, and that it ought to become general. All surgeons probably will agree with Roberts ("Fracture of the Radius," Philadelphia, 1897) that "the displacement (in Colles' fracture) is the result, not of muscular action but of the vulnerating force," and further, that "the muscular surroundings have little to do with the causation or continuance of the distortion." For this reason the fracture, if reduced, has no tendency to again separate. It would seem, therefore, that all that is needful after reduction of the fracture is some simple appliance that will protect the parts from accident while reuniting, and that will not interfere with passive motion of the fingers from the first day. Swinburne's practise of many years ago, referred to above, was good, though his explanation of it, by the principle of extension applied to the parts, was faulty. The author in several cases, after reduction, has molded a piece of wood-fiber splint material over the dorsum of the forearm and hand in a semiprone position, the hand in line with the forearm. This, bandaged over the parts, he finds sufficient protection for them. It does not interfere with passive motion of the fingers, and is readily removed and reapplied to permit of passive motion of the wrist-joint. It is molded directly over the skin, and requires no padding or compress. In these cases he has carefully caused passive motion of the wrist-joint from the fifth day, and discarded the splint on an average of about twenty-one days.

The author believes that the treatment of Colles' fracture could thus be formulated: (1) Reduction, not always easy; (2) protection by a simple retentive appliance while correct reunion of the bone takes place; (3) passive motion of the fingers from the first day; of the wrist, carefully, from the fifth day.

#### THE TREATMENT OF COXALGIA.

JALAQUIER (*La Presse Médicale*, June 26, 1897) is opposed to resection, and thinks this operation should be reserved for coxalgias complicated with constantly discharging fistulas or abscesses that have resisted punctures followed with injections of camphorated naphthol or of iodoform ether. The operations of the author have been atypical, and he never has felt sure that he has arrived at an entire curettage of the articulation. He agrees with Menard that preliminary injections create a condition favorable to the suc-

cess of the operation. In the treatment of non-suppurative coxalgias he is not exclusive. In the hospital and where the patient can be closely watched he employs continued extension. When the case cannot be attentively watched, Dr. Jalaquier applies the plaster at first after resection under chloroform, if the position is defective. He agrees with Brun in saying that abscesses do not follow more frequently in children treated by this method than in those treated by continued extension.

The author does not share the fears expressed by Kirrison relative to resecting under chloroform a coxalgia in defective position with or without dislocation, but he emphasizes the statement that he does not employ this method in coxalgias complicated with abscess. When coxalgias are cured or almost cured in a defective position, subtrochanteric osteotomy gives good results. Of one hundred and twenty-two cases treated at the Trousseau Hospital, sixty-seven have presented abscesses. Of the one hundred and twenty-two cases eleven died—seven of meningitis, four of pulmonary complications. This mortality rate is not accurate, as many of the children were not watched to the end. Of the one hundred and twenty-two cases forty-six were treated by simple continued extension, and it is curious that in this series we find five deaths from meningitis and four from pulmonary complications. Eighteen were treated by simple immobilization without resetting; they furnished two deaths from meningitis. Forty-one patients submitted to resecting under chloroform. In this series he found no deaths from meningitis or pulmonary complications. This may be due to good fortune, but the author thinks it is because he has never applied forced resection in children having abscesses or when the general condition was bad.

As to the comparative value of camphorated naphthol and iodoform ether in the treatment of abscess, the author states that sixteen abscesses were cured after sixty-eight injections of camphorated naphthol, or an average of three or four punctures for each patient. Twenty-three abscesses were cured after fifty-two injections of iodoform ether, or about two punctures for each patient. Twenty-two abscesses were cured by the combination of the two agents. Abscesses that proved refractory under camphorated naphthol were cured after several injections of iodoform ether. Some abscesses thus treated became fistulous, but the proportion

cannot be exactly given; this occurred only when the skin was ready to break spontaneously. The cure of these fistulas can be obtained if care is taken to avoid secondary infection and resort is had to frequent touchings with a solution of lactic acid, one in three.—*Medical Record*, Oct. 30, 1897.

#### THE TREATMENT OF THE PAINS OF ATAXIA BY METHYLENE BLUE.

It is stated in the *Journal des Praticiens* that LEMOINE has found this substance of value for the relief of ataxic pains. In two cases he failed to obtain good results from its use, but in five out of seven others there was a great diminution in the intensity and frequency of the pains, the relief being complete and prolonged. The pains which seem to be best relieved by methylene blue are the darting pains in the limbs and the sensation as if a tight band were being drawn about the patient. He asserts that the effect of the methylene blue is very rapid and that the pain speedily disappears. In two or three hours the urine is colored blue. In this difficult class of cases Lemoine is of the opinion that methylene blue is one of our best remedies.

#### CHRONIC PROCTITIS.

In *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases* for January, 1898, the subject of chronic proctitis is considered by TALLEY. He calls attention to the fact that we have two varieties of non-specific chronic proctitis: (1) Those cases in which a diffuse, persistent inflammation, superficial ulceration and papillomatous vegetations are the prominent features; (2) those in which the submucous tissues are principally involved in a hypertrophic process causing the proliferative stenosing proctitis. This latter condition is often engrafted on the first, and both conditions may coexist in any case.

In the first class of cases ulcerations are rather common, and these ulcers are usually in the lower rectum. This condition follows very readily the acute inflammation from any cause in a chronically congested rectum in patients whose power of resistance has been weakened by any cachexia.

The main symptom of this form of proctitis is slight tenesmus with frequent mucopurulent stools, these being at times streaked with blood; indeed, in some cases a large

quantity of blood is constant in the discharges and forms the most prominent feature of the case. The sphincter muscles become so relaxed in some cases as to cause fecal incontinence. The patient becomes weak and very much emaciated. Unless the inflammation involves the mucous membrane encircled by the sphincter, the patient will experience very little acute pain; however, there is usually a feeling of extreme discomfort in the rectum. When these symptoms have existed for a number of weeks or months it is sure that the patient is suffering from some form of chronic proctitis, and a thorough examination should be made at once. A digital examination may reveal the presence of ulcers when situated low in the rectum; however, this should not satisfy the physician, even if it be a fact that a majority of the ulcers are within reach of the finger. The entire rectum should be thoroughly inspected in every case, and to do this it is necessary to use the proctoscope. It should be remembered that the mucous membrane has, normally, rather a congested appearance, and when healthy may be mistaken for disease if compared with mucous membrane of other parts of the body.

Rest in the recumbent position is of paramount importance in the treatment of this form of proctitis. The diet should be of a liquid character, bland and nutritious. It is usually a difficult matter to properly diet a patient unless he is placed in an infirmary and carefully watched, for if treated at home, when he begins to improve and becomes very hungry some improper food will be given in spite of directions.

It is best in most cases to dilate the sphincter muscle, especially when the trouble is low in the rectum. When this is done the patient's bowels should first be thoroughly emptied with an aperient and the rectum washed out with a solution of boric acid; then the patient is anesthetized and the muscle paralyzed. After this the rectum is thoroughly inspected, and any ulcers discovered touched with a solution of nitrate of silver, forty to sixty grains to the ounce. Where there is no ulceration, but a diffuse chronic inflammation, the mucous membrane should be mopped with silver or copper of the strength of thirty grains to the ounce. The after-treatment consists in putting the patient to bed, washing rectum daily with warm boric acid solution, and the use of suppositories of iodoform and boric acid. A very useful injection in this condition is sweet oil and

iodoform, seven grains to the ounce, a tablespoonful to be injected at bedtime. These injections should be given with the hips elevated to prevent the oil from passing out.

In very chronic cases where the ulcers are extremely indolent, the solid stick of silver or crystal of copper may be used. In these cases it is necessary to make repeated applications before the ulcers become healthy and begin to heal.

It is stated by some authorities that we never find chronic proctitis in children. The author cannot agree with this statement, as a case came under his care a few years since in a boy four years of age. He had been passing considerable blood every time he went to stool for twelve months, averaging four or five stools daily. He had him anesthetized, dilated the sphincter, and examined the rectum as thoroughly as he could with a speculum. The mucous membrane was intensely red and granular. He applied freely a solution of silver, thirty grains to the ounce, over a surface somewhat larger than a silver dollar. The after-treatment consisted of washing the rectum with a warm boric acid solution and the injecting of a tablespoonful of sweet oil with three grains of iodoform at bedtime. This little patient was much better the day after the operation, when he passed very little blood. From that time on he steadily improved, and in six weeks was perfectly well. This was over two years ago, and he has had no recurrence of the trouble. During the twelve months he suffered he was continually taking medicine with no relief.

In very sluggish ulcers it is well to scarify or curette them before any application is made. Some works recommend enemata of starch-water and laudanum to relieve pain, but in the author's experience, where much pain exists it is due to some trouble in the sphincter area and is promptly and permanently relieved by divulsion of the sphincter muscle. He does not favor any medication of the rectum except that which is stimulating, antiseptic, or cleansing. In extreme cases, where the above treatment fails to cure and the disease is situated just above the sphincter, involving only a small area, it may be excised and the healthy membrane brought down and stitched to the skin at the anal margin, just as it is in Whitehead's operation for hemorrhoids. Papillomatous vegetations should be destroyed by chromic acid or the thermo-cautery. When they are high in the rectum and cannot be reached with a specu-

lum, the authorities advise splitting the rectum and anus back through the median line to the coccyx, to gain access to the trouble; but the author believes we will probably never have a case that cannot be effectually treated through the proctoscope. Very rarely a case may present with a tumor too large to be treated in this way.

The main feature of the proliferative stenosing proctitis is the involvement of the submucous connective tissues in a fibrous, hyperplastic process which causes a thickening of the rectal walls and subsequent contraction and stenosis of the rectum. In this variety all the normal structures of the rectum are matted and fused together, the normal endothelium is changed, and the glands become atrophied. In some cases the inflammatory process extends into the perirectal tissues.

The lower half of the rectum is usually the seat of trouble, and in most cases it does not extend more than two or three inches above the sphincter muscle. There is rarely more than one point of extreme contraction, and there may be a chronic superficial ulcerative proctitis both above and below the constriction. The lumen of this stricture may become very small, but rarely closes entirely, as the passing of feces keeps up a certain amount of dilatation. This form of proctitis usually follows and is a late stage of the chronic ulcerative variety.

For the deep tissues to become affected it is not necessary for these ulcerations to be extensive, but just sufficiently large to admit the infection. In some of these cases we get a history of syphilis, but in none of them has the author been able to cause any absorption or disappearance of the inflammatory products by administering antisyphilitic treatment. So it appears that if the primary lesion was of a syphilitic nature, it only acted as a simple ulcer in opening up the structures of the bowel to deep infection. An inflammatory thickening of the rectal walls due to tubercular infection is usually accompanied by extensive tubercular ulcerations and evidences in other parts of the body of tuberculosis.

A patient suffering with stenosing proctitis will notice an increasing difficulty in defecation. In the morning there is often a feeling of urgent necessity to evacuate the bowels, but when he goes to stool he strains long and accomplishes little, and does not experience that relief which follows a thorough evacuation. He frequently passes little hard balls of fecal matter, and when the constrict-

tion is low the mold of the fecal mass will somewhat resemble a lead-pencil or a small tape. In this condition it is very easy for obstruction to occur from a blocking of the small passage with hardened feces. More can be learned of this condition by digital examination than in any other way. Instruments cannot be used on account of the constriction. By the finger you can distinguish a diffuse thickening of the rectal walls with a constriction in many cases, which will not allow it to pass. Strictures due to the healing of ulcers have a different feeling; they are irregular, and sharp bands project into the bowel. Carcinoma of the rectum may be eliminated by the history of the case.

This stenosed condition of the rectum never recedes spontaneously, nor is it benefited by any internal medication. It may be treated by palliative means or dealt with in a radical way. The best palliative method is to dilate as much as possible with elastic bougies and continue to pass them, at intervals, indefinitely. The Wales bougie is to be preferred, as it is hollow, and water may be passed through it while it is being introduced, to press the mucous folds out of the way and keep the instrument from catching in them. These bougies should not be passed oftener than every five days.

When the stricture is very resistant, an internal proctotomy should be performed to facilitate dilatation. There is little danger in this operation when the stricture is not more than two inches above the sphincter muscle. After internal proctotomy it is generally advisable to forcibly dilate the stricture with an instrument made especially for the purpose. Even after the latter procedure it is a good plan to pass soft-rubber bougies occasionally to avoid a recurrence of the stenosis.

#### CONTUSIONS OF THE ABDOMEN.

DEMONS (*Revue de Chirurgie*, No. 11, 1897) read a paper before the French Surgical Society upon this topic. He pointed out that as a result of traumatism applied to the abdomen the parietes could be injured, or the parietes together with internal organs, or the internal organs alone without demonstrable lesion of the parietes. The first question to determine is whether there is any visceral lesion. The muscular resistance offered by the abdominal walls varies in different individuals, also in the same individual according to the point at which force is applied and the condition of contraction or relaxation under

which the muscles are found at the moment of injury. Post-mortem experiments have shown that an astonishing degree of force is necessary to rupture viscera because of the resistance offered by the rigid muscles. This resistance, of course, is done away with when an injury is inflicted during sleep or when the patient is profoundly drunk. It is very great when the blow has been inflicted at the moment of violent muscular effort. The direction of traumatism is most important. If it is perpendicular to the walls its effects are more dangerous; if glancing, it is not so likely to injure the internal organs. Moreover, viscera are more vulnerable at certain times; thus, a distended stomach is much more readily ruptured than one which is empty, and pathological alterations in the walls of the intestinal canal render it more easily ruptured. Wandering viscera are more readily injured than those normally placed, and adhesions fixing organs prevent them from flying away from force. The symptoms vary greatly; sometimes these are very slight; sometimes they are extremely well marked. Between these two extremes there is every grade of severity. Pain is nearly always present. It may be limited, diffuse, or even radiating to other regions. It may be spontaneous or provoked. Clinical experience has shown that it is often more intense in contusions of the parietes, that it may be insignificant and transitory in visceral ruptures. Ecchymoses and tumefactions have no symptomatic value; this, also, may be said of one or two vomitings of the contents of the stomach and of slight tympany. Rigidity of the belly is, however, highly characteristic and sometimes accompanied by moderate tympany; it sometimes develops with a perfectly flat belly. It commonly accompanies rupture of hollow organs. The important general symptoms may be entirely absent or extremely well marked. Usually they are expressed in the form of shock. This when present is significant, but when absent by no means excludes the presence of most serious internal lesions.

The determination of the particular viscus wounded, the nature of the force and its point of application and the seat and nature of the pain are extremely important. Later local and general symptoms of internal hemorrhage are extremely characteristic, and finally the appearance of certain symptoms which we know are associated with lesions of certain viscera may complete a satisfactory symptomatology, so that diagnosis in a con-

siderable number of cases is not only possible, but even readily made shortly after an accident; thus extensive ruptures of the liver, kidney, or even the spleen, can be recognized without much difficulty, but it must be remembered that in a considerable number of cases the nature of the injury will remain obscure.

As to the exact portion of the organ injured and the presence of single or multiple lesions, this must necessarily be a matter of conjecture. As to the evolution of these cases, there are cases of apparently slight severity which promptly and permanently recover; others of these apparently favorable cases become worse for a time and then recover; others suddenly become extremely grave; others recover for a time and then later become extremely severe. Others, severe from the first, recover after a time and then become extremely grave; in others the outlook remains grave from the very first.

In forming the diagnosis insufflation of hydrogen has not proven successful and is attended with dangers. Exploratory puncture is likewise to be condemned. Exploratory laparotomy is the method of choice and would be universally adopted if it were absolutely inoffensive; however, it requires the administration of an anesthetic and should only be adopted when the possible advantages arising from it more than counterbalance its inconveniences. It should be practised immediately when the *ensemble* of symptoms suggest from the first rupture. It should be delayed in cases which are at first apparently trifling, but later become serious, or when it is necessary to allow the patient to recover sufficiently from shock to justify intervention. Late intervention is indicated when cases which are apparently trifling assume a serious aspect. Medical treatment is practically that applicable to shock.

#### *THE TREATMENT OF TETANUS BY ANTITETANIC SERUM.*

BORNET (*Gazette des Hôpitaux*, 1897) reports a case of tetanus recovering after ten injections of antitetanic serum. The disease developed after the patient worked eight days in the hold of a vessel, unloading sugar sacks. There was no distinct wound, and the author concludes that the infection took place through abrasions of the hands and possibly through the lungs. The disease began with trismus; the next day it was followed by violent general contraction be-

ginning with the cervical muscles and involving the back. Five days later the muscles of the legs were attacked, whilst the arms were not involved at all. The patient came to the hospital eight days from the beginning of his disease and the next eleven days received ten injections, each of ten cubic centimeters of antitetanic serum. He recovered completely.

[It is evident that this patient was attacked with a light form of tetanus and one from which patients not uncommonly recover spontaneously. From the meager report of the case it is difficult to determine whether or not the treatment was especially efficacious.]

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## Reviews.

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***PATHOLOGICAL TECHNIQUE.*** A Practical Guide for the Pathological Laboratory. By Frank Burr Mallory, M.D., and James Homer Wright, M.D. Philadelphia: W. B. Saunders, 1897.

The work under review, as the title indicates, is a guide for the pathological laboratory, giving the methods for preparing and studying morbid tissues of all kinds. In addition it furnishes directions for conducting post-mortem examinations and bacteriological investigations, both clinical and experimental. The descriptions are clear and most accurate. Everywhere there is the evidence of abundant personal experience on the part of the authors, and the various methods recommended are described in such manner that the student will appreciate at once that the authors have found the methods useful when carried out as they describe them. An important advantage of the book is the heavy-faced type used for headings and titles of methods. This is of very great importance in all works intended for laboratory reference.

We need not enter into a review of the separate chapters. They are uniformly good. It may be well, however, to call attention to a few deficiencies. We should have been pleased to see the writers incorporate a short chapter on the aniline dyes, to give the student a general idea of their relative and general properties. The multiplicity of stains, many of them nearly alike in character and action, and many others quite dissimilar though nearly alike in name, proves confusing to students, and would warrant the introduction of a section such as we suggest. Perhaps the authors take a different view, and of course such a chapter is not strictly a

requisite. The sections on examination of the stomach contents, the blood, sputa, urine and feces deal with matters really more closely connected with clinical medicine than pathology. They are very short and in comparison with the rest of the book imperfect and unsatisfactory. It would have been better in our estimation to have omitted them entirely rather than to introduce them in their present form, in which, as the authors state, they pretend only to present what is of interest to the student in pathology. These remarks apply especially to the parts on urine, feces, and gastric contents.

Notwithstanding these slight blemishes the work is the most satisfactory guide of its kind in our language.

A. S.

***A SYSTEM OF MEDICINE BY MANY WRITERS.*** Edited by Thomas Clifford Allbutt, M.A., M.D., F.R.C.P. Volumes I, III, and IV.

New York: Macmillan & Company, 1896 and 1897.

While a number of excellent works, of an encyclopedic character, dealing with the practise of medicine have appeared in American medical literature within the last ten or fifteen years, no such work of English authorship of equal importance has been compiled. In the *GAZETTE* for June, 1897, we reviewed the second volume of this series, because that was the first one sent us, and pointed out at that time that the publishers had been fortunate in obtaining an editor so well qualified to carry out a rather difficult task. From a reading of that review it must have been evident to all that the plan of the series was admirable, and those who are fortunate to have had the opportunity of reading the other volumes so far published must be favorably impressed with the practical utility of all the text.

The opening of the first volume on the Prolegomena, with articles on topics introductory and fundamental, is written by such well known men as, among others, Billings, Hutchinson, Burdon-Sanderson, Leech, Eustace Smith, and Dyce Duckworth. The articles upon the Fevers, which follow in the next part, are models of condensed information, so stated as to be useful to the practitioner, but they are not as a rule so exhaustive as in some of the American works on Practise. Perhaps the most noteworthy are those chapters on Diphtheria, by Gee, Thorne Thorne, Kanthack, and Herringham; on Enteric Fever, by Dreschfeld; and on Puerperal Septic Disease, by Playfair.

In the third volume we find the Diseases



of Obscure Causation, such as Rheumatism, Gout, Diabetes, Rickets, Acromegaly, etc. Of the authors of these articles the best known to our readers are Garrod, Cheadle, and Saundby. Following the articles on these subjects we come to the next section, on Diseases of the Alimentary Canal. The opening chapters in this section are on the Pathology of Digestion, by Ralfe and Fenwick; on the Pathology of Secretion, by Rose Bradford; and on Shock and Collapse, by Cobbett. Why these last named conditions should be considered in this place is not clear. The article on Dilatation of the Stomach is naturally written by the Editor, who was one of the first to study this important condition. By a curious division of labor Treves writes on Acute Peritonitis, while Acute Peritonitis of Undetermined Nature is written upon by Allchin. In the part on Disorders of the Bowels we find interesting articles by such men as Brunton, Rolleston, Hale White, and Treves.

The fourth volume, on Diseases of the Liver, of the Kidneys, of the Lymphatic and Ductless Glands, Diseases of the Respiratory System, and of the Nose, Pharynx and Larynx, is slightly smaller than its predecessors. The articles in it are quite up to the high standard set for it by the preceding issues, and the names of the authors are equally well known to the profession in this country and in England. What could be more appropriate than that Laffeur should write on Amœbic Dysentery, Hunter on Diseases of the Liver, and Henry Morris on the Surgical Affections of the Kidneys; or finally, that Ord should write on Myxœdema or Felix Semon on Diseases of the Larynx or Pharynx. The character of the authors is a guarantee of the value of their contributions to this very notable work, which will possess the advantage to American readers of presenting the subjects in a somewhat different manner from that to which they are accustomed.

**DISEASES OF THE EYE.** By Edward Nettleship, F.R.C.S. Revised and edited by W. T. Holmes Spicer, M.A., M.B., F.R.C.S. Fifth American from the sixth English edition. With a supplement on color blindness by William Thomson, M.D. Cloth, \$2.25. Philadelphia and New York: Lea Brothers & Company, 1897.

Nettleship on the Eye has become a classic in the literature of medicine. This is due to the fact that it presents the reader with the very important facts in ophthalmology and leaves the discussion of the more abstruse facts to the larger and more exhaustive works

on this topic. In other words it is emphatically the book on the eye for the beginner in ophthalmology and for the general practitioner of medicine. Even the trained ophthalmologist finds it valuable, and often turns to its pages. Whenever the views of our English cousins clash with those commonly held in America the American editor points out the variation and makes the text conform to American views. The chapter on color blindness is of course particularly authoritative. Originally good, the book has been improved with each edition and now represents the advanced ophthalmology of the day.

**A CLINICAL TEXT-BOOK OF SURGICAL DIAGNOSIS AND TREATMENT.** For Practitioners and Students of Surgery and Medicine. By J. W. MacDonald, M.D. Illustrated. Philadelphia: W. B. Saunders, 1898.

The attractive title of this book suggests the aim the author had in view and which he clearly expresses, to the effect that the rapid advance in the art of surgery makes it necessary to issue systems of surgery in many volumes, and text-books of large dimensions are now deemed necessary to cover the field. As a matter of fact the physician wishes to know first what is the disease or injury and next what is its proper treatment. Considerations having to do with pathology and bacteriology are omitted. The author states that he has taken great care to make the examination of each disease or injury systematic and comprehensive, and, when possible, directions are laid down as to the methods of examination.

The scheme is an extremely attractive and practical one, and provided it is carried out in a scholarly and systematic manner the book is likely to be of much greater service to the general practitioner than are the large systems that have recently been put upon the market. A review of the book is at once convincing as to the conscientiousness with which MacDonald has performed his work. Practically all the modern and approved operations are described with gratifying thoroughness and clearness. The illustrations are copious, excellent, and apt. There is a noteworthy absence of digression from the main points at issue and of that confusing minutiae of detail in describing comparatively unimportant symptoms or operations in which the author may happen to be personally interested. The book can be heartily recommended, and there can be little doubt as to the favor with which it is likely to be received by the profession.

## Correspondence.

### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P.  
LOND.

In our last letter we referred to the discussion at the Royal Medical and Chirurgical Society on the prevention of enteric fever, which has now been brought to a close at a second meeting. At the opening debate the matter was mainly discussed from the point of view of the public health officer, but Dr. Payne discreetly pointed out the unreasonableness of such an attitude. If we assume that enteric fever is in the strict sense a specific disease, and that each fresh case can and does only arise from a preexisting case, obviously the medical man at the bedside should be the first line of defense. If by close antiseptic precautions the disease can be hemmed in at the bedside, there will be no need for the enormous labor of examining water-courses and water-supplies. We are too apt to look upon feces as the sole vehicle of the specific infection, but only recently two cases have come under our observation where the disease was almost certainly carried in the saliva from one patient to another, by drinking out of the same cup. Feces are very readily dealt with because, although in most houses the ideal method of burning them is impracticable, they may be rendered quite harmless with corrosive sublimate solutions. On the other hand the disinfection of bedclothing is very insufficient. Linen and cotton fabrics can be dipped in carbolic solutions and then boiled, but the same treatment cannot be meted out to woollen and flannel garments and blankets without damage to them; and for these articles there is the same objection to the use of corrosive sublimate solutions. Where disinfecting ovens are handy, these of course supply an obvious means of disinfection, but we still require some convenient method of dealing with these articles in private houses. Incidentally Dr. Payne expressed a belief that the theory of infection by inhalation of the typhoid micro-organism was something more substantial than a popular phantom. Indeed, Dr. Tivy sought to substantiate this view in the case of the Clifton epidemic, which Dr. Davies, the medical officer of health in Bristol, had conclusively traced to a polluted milk supply, as we mentioned in our last letter. Dr. Tivy maintained that this epi-

demic of enteric fever was due to sewer-gas poisoning from want of ventilation of the main drains, a condition that was intensified by the drought prevalent in August, September, and October. Sewer-gas seemingly found its way back into the houses, and especially into those situated in the higher parts of the town. Inasmuch, however, as Dr. Tivy did not marshal even the ghost of an argument in support of his views, it would be absurd to maintain his assumption against the detailed and elaborate conclusions of Dr. Davies' report. This appears, too, to be the view of the medical practitioners of Clifton, who have risen unanimously in support of their medical officer of health.

On Friday, November 26, the Clinical Society resumed their discussion on the treatment of angular deformity of the spine by immediate reduction. Mr. Watson Cheyne expressed himself as skeptical of the value of this method of treatment. He was surprised that the ill effects recorded were so few. General tuberculosis so often followed upon the forcible straightening of a tuberculous joint that one would have expected the same accident in dealing similarly with the spine. Then, again, it is impossible to conceive that the large gaps in the bodies of the vertebræ can be filled in by newly formed healthy bone, and there is but little justification for attempting Cabot's plan of securing posterior ankylosis by laminectomy. It is extremely doubtful whether better results are obtained by this method than by the double extension method as commonly practised in this country. Mr. Noble Smith agreed with Mr. Cheyne that time alone could pronounce a verdict on the procedure. For the present it seemed desirable to rest contented with the operations that had been performed, and to see what would be their outcome after two years had elapsed. He cited cases to show that much greater danger of general dissemination of the tuberculosis existed than the recorded cases would suggest; and in one case the new bone that had been formed in the gap of the vertebral bodies in the course of two and a half years was so soft and friable that it could not be said that any useful repair had taken place at all. For those interested in the details of the procedure we would call attention to an attractive article by Mr. Tubley in the January number of the *Practitioner*. This journal is now entering on the fourth year of its transformed existence, and holds an undisputed supremacy over all rival publications

in this country. To this end nothing has conduced so greatly as the indefatigable energy and judicious piloting of the editor, Mr. Malcolm Morris. We are looking forward to seeing its pages adorned by articles from the pens of our American brethren. Several other modifications have been introduced into the new series with a view to making the journal more definitely practical and clinical than heretofore.

The General Medical Council has succeeded in exciting general disapprobation by at last doing something. Their resentment has fallen on the head of the already much-to-be-pitied unqualified assistant. He is to cease to exist, and that forthwith. We have no wish to defend the existence of the unqualified practitioner, but seeing that he has been tolerated for years, and that in many instances this very tolerance has led to his existence, we would have given him a longer rope with which to hang himself. As it is, he is doomed to disappear, and we shudder to think of the prospect provided for the families with which in many instances they are cursed. We cannot but think that the Council might have found some more desirable object on which to exercise its punitive zeal.

At the Pathological Society of Manchester Dr. Raw showed a case of acute tuberculosis of the pleura, and made some remarks on the treatment of this condition. In his case, as so often happens, the pleura was affected without any invasion of the lung tissue. Few will be found to quarrel with his dictum that probably all cases of pleurisy are of microbial origin, and that cold is at most a predisposing agency, lowering the power of the lung to resist the activity of micro-organisms. It will also be pretty generally conceded that the large proportion of pleurisies, especially of insidious origin, and not occurring in the course of any specific or septic disease, are tubercular in origin. In this connection Dr. Raw recommends that as much of the infected pleura as possible should be removed and scraped away in operations for empyema due to recognized tuberculosis of the pleura. But therein lies the difficulty that the tubercular nature of the process is seldom demonstrable because of the extreme rarity with which tubercle bacilli are found in empyemata of almost certainly tuberculous origin.

In the *British Medical Journal* of December 4, 1897, Dr. Thin calls attention to the curative effects of milk diet in cases of intestinal derangement. Every physician is aware

of the readiness with which many cases of obstinate diarrhea, even of a dysenteric type, yield to rest in bed and an exclusively milk diet. Dr. Thin's observations refer especially to cases of psilosis, in which unmistakable signs of systemic poisoning were present in the patients until milk was substituted for other nutritious articles of diet. Even so, we have to decide whether the removal of other food substances or the adoption of the milk diet was the cause of the improvement. Dr. Thin inclines to the former alternative and suggests that some ferment can develop in such foodstuffs which cannot grow in milk or its products during digestion. Certainly in psilosis one of the most marked features of the intestinal flux is the abnormal degree of fermentation manifested in the evacuations. If a lightly boiled egg or a cupful of arrowroot is capable of producing a severe relapse, we may pretty safely assume that it is the presence of food materials other than milk in the intestine that encourages this abnormal fermentation. In other words, the virtues of a milk diet are rather passive than active. Incidentally Dr. Thin mentioned a case of lupus erythematosus that had completely healed under an exclusively milk diet, but subsequent experience of the same treatment had confirmed the *post hoc* but not the *propter hoc* of the cure.

At the meeting of the British Balneological Society Dr. Snow drew attention to the increase of intemperance from the administration of coca wine to invalids. This is in nearly every instance a strong alcoholic beverage containing more or less of one of the preparations of the *Erythroxylon Coca*. Thus the patient is exposed to the danger of contracting not only the alcohol habit, but the coca habit as well. Women who have not the hardihood to openly procure alcohol over the counter, will demand it without a blush under the innocent name coca wine, or a still more enticing French title. Many mothers, too, who would hold up their hands in holy horror at allowing their children to taste wine, allow them to resort freely to the bottle of coca wine, believing it to be as innocuous as it is palatable. We fear the practise would come into even more general use if the attractions depicted in a recent work on pharmacy were more widely known: "The subject experiences an exaggerated sense of *bien être*, a feeling of veritable beatitude, both mental and physical, expressing itself in incoherent

flights of the imagination and an abnormally acute consciousness of muscular vigor." The charms of opium and alcohol pale before this beatific vision.

We regret to say that the Council of the British Medical Association, acting upon the resolution passed at the general meeting in August, has sent reply-paid postcards to all the members of the Association, inviting an answer to two questions: (1) Are you in favor of the Association undertaking the duties of medical defense? (2) Are you willing to pay a special subscription of not less than five shillings, or more than ten shillings, for this purpose? As yet we have no information as to the result of this plebiscite, but we cannot conceive the likelihood of a majority of the members favoring such a proposition. The large majority of members joined the Association for the purpose of keeping themselves abreast of advances in modern medicine and surgery, and not to subsidize their medical brethren in fighting out their professional squabbles. It is impossible to see what even visionary advantage can accrue to the Association from taking on its shoulders a burden which has hitherto been satisfactorily borne by an absolutely independent Medical Defense Union.

Mr. Symons Eccles read a paper before the Medical Society of London on the Mechano-Therapy of Movable Kidney. Sixteen cases had been treated by him by the "rest cure," with special attention to abdominal massage and exercises for periods varying from fourteen days up to eight weeks. Out of eight patients who submitted themselves to a prolonged course of treatment, five were very greatly improved by abdominal massage, exercises, and the application of the pad and belt; one of these had been free from all discomfort for five years, and another for two years after suffering a prolonged period of discomfort prior to the treatment. No one will quarrel with Mr. Eccles over the benefits obtained by rest and recumbency in cases of movable kidney, but it is difficult to see on what possible theory massage can check the mobility of a dislocated kidney. For our own part we have long since discarded any belief in the efficacy of the pad and bandage, although in some cases its presence seems to charm away some of the subjective disturbances so commonly associated with the condition. If any interference can be considered justifiable, nephrorrhaphy at any rate has the merit of being a rational line of treatment.

### BERLIN LETTER.

By JAMES J. WALSH, PH.D., M.D.

Two things are prominent in therapeutics in Berlin as we begin the year. One is Dr. Frenkel's (of Heiden, Switzerland) treatment for locomotor ataxia by means of exercises calculated to teach coordination once more; the other is the therapeutic effect of diet in health and disease. The former has been the subject of special demonstrations in at least two of the medical societies recently, and is constantly referred to by the clinicians. When there is a consensus of opinion among men who differ so widely on certain points in nervous diseases, especially in reference to tabes, as Leyden, Jolly, Mendel, Gerhardt, Oppenheim, and Remak, one can be sure that there must be some very convincing reasons for their agreement.

The idea of the movement treatment is to teach the patient again the coordination of muscles and the muscular sense that he has lost by the gradual involvement of the fibers of his posterior columns in tabes and related nerve affections. It would seem utterly visionary at first thought to hope for improvement in incoordination due to the fact that the sensory paths no longer convey to the consciousness the relative positions of parts and the state of contraction of muscles. That walking could for instance be taught again after it had been lost through an organic lesion involving that complex of sensations which goes to make up the equilibrium sense would seem incredible, but that is not only what is claimed for the Frenkel treatment, but is actually being accomplished by it in every prominent nervous clinic in Europe.

Patients who have been bedridden for years because of absolute inability to regulate their muscles for walking, get out of bed and learn even to go up and down stairs. A case at the Salpêtrière in Paris, which had not been out of bed for six years, now walks the streets without a companion. To one who knows how ataxics lack the confidence to go alone in busy streets, this means a great deal. Corresponding cases that have been bed-fast for three, four and six years, and even longer, have been reported here.

So much it seems necessary to say as a preliminary about the results because the treatment is so simple. It consists in putting the patient through the simplest exercises with the parts that are especially ataxic, but

requiring him to do them with the greatest exactness possible. If for instance he is confined to his bed, he is asked to put the heel of one foot on the kneecap of the other leg. First this is done with the aid of his eyes, then with the eyes closed. In a surprisingly short time this movement, which is so often used to show the presence of ataxia, can be performed very exactly and promptly. It was from experience with something like this that the treatment originated. A distinguished neurologist, about to give a clinical lecture on tabes, had a rehearsal of his patients beforehand in order to see what sets of movements particularly demonstrated the ataxia of each case. The patients were told they would be put through these before the class. Becoming a little anxious about doing them well, many of the patients repeated the movements a number of times beforehand, with the result that they utterly spoiled the demonstration.

After the exercises in bed the patient is put on his feet, and with proper support put through the motions of walking. He is asked to put one foot forward a little distance, then a greater distance, then toward the side, then backward. Each time it is pointed out just where he should put it, so as to teach exactness and reestablish the muscular sense and the sensations of coordination. After a while he is able to dispense with supports. So far as muscular strength goes the ataxic has no need of support. It used to be a favorite demonstration of Duchenne's to have some of his heaviest pupils mount the backs of ataxic patients, to show there was no lack of muscular power.

After a certain number of exercises the patients no longer need to watch their every movement with their eyes, but can walk with their eyes slightly raised, then looking straight ahead, and finally with eyes closed. Only two bits of technique are insisted on in carrying out the exercises: first, every movement must be done with the greatest possible exactitude, otherwise the whole aim of the treatment is lost sight of, as it is not exercise in the narrow sense of the word, but training not to overdo movements, that is, needed; second, a movement seance must never last more than seven to ten minutes. Owing to the disturbance of the sensory paths tabetics have lost the proper sense of fatigue, so the exercises may easily be overdone, and an intense tired feeling with great discouragement result. The accomplishing of exact movements seems to need supreme tension on the part

of the higher cerebral motor centers—a straining of the mental attention, as it were, to catch the faint inklings of muscular and position sense that come filtering up through the degenerated sensory columns. This must always be taken into account, and not more than two short seances allowed a day.

The contraindications would seem to be very few. Where the tabetic process is very acute, where the lightning pains are frequent and severe, and where there exist *severe* bladder and rectal disturbances, the patient usually is the worse for persistence in the treatment. Old tabetic cases, where the pathological process is practically at a standstill, are especially suitable for the treatment. All are benefited to some degree; those patients least in whom some inquiry into their past history reveals the fact that they were always a little awkward—*i.e.*, were always afflicted with a natural ataxia.

In the preataxic stage—and the more exact diagnostic methods of these last few years have made this period easily recognizable—the employment of the exercises has in a number of reported cases prevented the development of incoordination. Besides, in tabes the exercises have done good in certain hysteric tremors, pareses, and incoordinations. In multiple sclerosis, as might be expected, and in the “intentional tremors” generally, they are very effectual in restoring coordination; in neuralgias, especially sciatica, they have given good results; while in paralysis agitans they have relieved the sense of constraint caused by the muscular rigidity, which in these last few years has come to be looked upon as so essential a symptom of the disease.

I have spoken only of the reteaching of coordinate movements of the legs, but a great deal of good can be done also for incoordination of the hands. Here the exercises are necessarily for the accomplishment of finer movements—writing and the like—and really good results are not easily attained. I have seen two or three patients who had acquired a very legible handwriting after having lost the power to write anything but an illegible scrawl. In this, of course, a great deal depends on the legibility of handwriting in the preataxic days. As to the coarser coordinate movements required, in eating for example, or buttoning clothes, these can undoubtedly be retaught very satisfactorily in the great majority of cases.

I said at the beginning that the other feature in therapeutics here was diet. Two

things serve to bring it into prominence just now: first, the excellent results that are being accomplished in the treatment of tuberculosis in sanatoria, where careful diet adapted to each patient is one of the main features; second, the recent appearance of the first volume of Professor Leyden's book on Diet Therapy. Professor Leyden is said to be able to feed patients on more varied diet than any man in the profession, and secure more specific results from dietetic treatment. In some of his recent lectures he has touched on dietetic questions, and I have thought that some of the points would be interesting to the readers of the *GAZETTE*.

He says, for instance, that when tonics and appetizers have failed of their purpose for him, he has often had salted or acid or spiced foods create the desired appetite for food—for example, herrings, caviare, sardines, pickles, salads, carbonic acid drinks, or food flavored with lemon or spiced with mustard, horse-radish, or pepper, or watercress, and the like. Most of these things I think are often considered as absolutely unsuitable for sick people.

For chronic constipation Professor Leyden seems to have two favorite dietary additions for patients with whom they agree—plentiful sour milk, and cooked or preserved fruit eaten at night before going to bed. He prefers a sort of fruit soup for this, the preserves being allowed to stand in boiled water for some eight to ten hours before being eaten, in order to thoroughly soften them.

As warming drinks in cases of chill, besides the addition of alcohol he believes in the caloric influence of sugar. Sugared liquids and chocolate owe their undoubted warming influence to this fact. For sleep he finds that a light collation before going to bed—sometimes no more than a glass of milk, a biscuit or two, or an apple—frequently make a more effective hypnotic than drugs. In weak, overtired patients, especially in asthmatic cases, he has often had a cup of coffee taken at midnight, after an hour or two of hopeless sleeplessness, bring the much desired sleep. Mohn (a kind of indigenous poppy, the seeds of which are often scattered over bread here) and lettuce are excellent dietary somnificants. For many people, in his experience, smoking acts as a hypnotic.

Professor Leyden, like Professor Ewald, Dr. Boas, and some other of the practical clinicians here, does not seem to put over-much faith in the all-nutrient power of milk. The opinion is generally expressed that it is

not alone sufficient to support life. As to just what is needed in addition to it for perfect nutrition all are not agreed. At least milk sugar should be added, according to Ewald, while some others think that additional fat, as cream, or albumen as in eggs, is needed.

Professor Leyden seems to occupy a position apart from most people with regard to mother's milk. He considers that it possesses specific properties which should cause it to be classed among the remedies we owe to organo-therapy—that it is something very different from a mere composition of nutrient materials. The old belief that some of the qualities of the mother or the nurse may be drawn in with the milk he does not consider absolutely unfounded. He even offers the somewhat startling suggestion that the present almost universal use of cow's milk for the nutrition of infants may have an unfavorable influence on the development of generations to come.

At a recent meeting of the Society for Internal Medicine Dr. Frank presented two cases of facial neuralgia that had become so unbearable that there was question of operative interference. Both had gone the rounds of the specialists and had tried all the known antineuralgics. In one case a single Pravaz syringeful, in the other two such injections, of a one-per-cent. solution of permanganic acid gave complete relief, lasting now for more than a year in each case. Professor Eulenberg, who has used the remedy in some thirty cases, says that while it does not always give relief, it often gives marvelous results and should always be tried before operation is resorted to. It must be injected directly into the substance of the nerve, and this causes considerable pain for a time after the injection. There are no complications or sequelæ of the treatment. For sciatica it is necessary, according to Dr. Frank, to cut down and expose the nerve to insure the remedy getting within the nerve sheath.

#### *EXTRACTION OF A BROKEN WATER TUMBLER FROM THE RECTUM.*

To the Editor of the *THERAPEUTIC GAZETTE*.

SIR: On the 1st of October A. R., an Italian, was brought to the private hospital of Dr. T. T. Koenig in Coulterville and gave the following history: The previous evening, while intoxicated, he was dancing naked in his cabin when he slipped and sat down violently upon a water tumbler which stood

upon the floor base upwards. The glass was partly broken by the fall, but the major part of it entered the anus and passed into the rectum base uppermost. The patient claimed to have lost "gallons" of blood; but his pulse was good and there was no hemorrhage worth mentioning. As it was late in the evening when he arrived, operation was deferred till next day.

The following day (October 2) operation was performed by Drs. G. M. Hawkins and T. T. Koenig. Dilatation of the anus allowed of thorough examination, which showed the tumbler firmly wedged in the rectum, the sharp points being towards the anus and firmly embedded in the sphincter muscle. Posterior rectotomy having been performed, an effort was made by means of two Sims specula to provide smooth planes on which the jagged points could slide out while the glass was pulled upon by curved forceps inserted behind it. But this failed because the blades of the specula could not be inserted between the rectum and the sharp points of glass. The external excision was then lengthened upwards, the coccyx dissected clear of soft parts and removed. This gave sufficient room to allow of manual extraction, the mucous membrane being retracted on both sides by the large forceps already placed in position to check hemorrhage. The bleeding was slight considering the extent of the incision. The rectum was then sewed up and afterwards the skin, a tampon being placed in the rectum and a drainage tube in the wound.

The following day the patient had a passage from the bowels, and when the wound was dressed was able to stand up; and at the latest accounts was doing well. The glass when extracted measured 1.9 inches at its base, was three inches high, and 2.5 inches wide at its mouth.

G. M. HAWKINS, M.D.

COULTERVILLE, CALIFORNIA.

#### *INGROWING TOE-NAIL.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In a personal experience of an ingrowing toe-nail, the excision of the nail or portion of it was not favorably considered. The nail was thickened, with a tendency to contracture. Relief without an operation was secured by removing the pressure of the shoe upon the toe, excising a crescent out of the nail, leaving the ends pressing upon the edge of the matrix, paring the middle of the

nail down as thin as possible, and elevating the end of the nail by a pledget of cotton. An application upon the raw surface of a four-per-cent. solution of cocaine rendered the placing of the cotton under the nail painless. This cotton was changed every forty-eight hours. In a fortnight the toe was well and the nail was not disfigured.

A toe-nail is like a barrel hoop; when thick in the center it contracts well, when thin it expands. The ulceration is due to the contraction of the edge of the nail upon the edge of the matrix. The thinned nail, like the hoop, will expand and in this way cure the ulcer by removal of cause.

Respectfully,

B. H. DETWILER, M.D.

WILLIAMSPORT, PA.

#### *CAUSE AND PROPHYLAXIS OF BALDNESS.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The question of baldness is one that forces itself on most men at some time in life, but why women should be nearly exempt is a question that has puzzled me for a long time. The common theory that baldness is due to the wearing of heavy headdresses has long been held as the correct one, and to which the hat-maker has catered by placing ventilators and other devices in hat crowns to insure a supply of fresh air. The theory is, I believe, entirely erroneous. We find hair growing on parts of the body, as in the axilla, where air is to a great extent absent and the conditions unfavorable to the growth of hair, yet it persists to the end of life.

Again, although women as a rule wear light headdresses, yet they nearly always wear a thick mat of hair which must keep the scalp as warm as a heavy cap, and this during summer and winter; yet it is rare to find a woman with a bald head. Of course, I am not speaking of baldness due to disease, such as eczema, syphilis, etc.

The following incident gave me a clue to what I consider the true theory of baldness: A farmer had a horse he was going to exhibit at the fall fair, and to add to his appearance he braided the tail, turned it up on itself, and secured it with a rubber band placed about six inches from the root of the tail. This was left on for a few days, and the result was that in the course of a few weeks nearly all the hair came out of the tail. The constriction cut off nutrition, and the follicles were starved, the hair eventually falling out.

The blood-supply to the scalp is conveyed by the frontal, temporal and occipital arteries, situated just where a tight hat would press on them and bring about a gradual starvation of the hair follicles. A woman, on the other hand, wears her hat resting lightly on top of the head, bringing no pressure whatever on the arteries, and thus escapes baldness. The maximum of hat pressure in a man comes on the frontal arteries, and in consequence we find baldness generally commences on the regions supplied by those vessels. To escape this affliction we must henceforth wear our hats on the back of the head or make hat-makers study anatomy.

M. C. BLACK, M.D., C.M.

PAISLEY, ONT.

#### *A CASE OF POISONING BY CONVALLARIA MAJALIS.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: My excuse for this communication is the rarity of recorded cases of poisoning by convallaria majalis, in contrast to the number of cases in which another drug of the same class—digitalis—has produced toxic effects. While this scarcity of cases is probably due to the fact that digitalis is prescribed so much more frequently than the lily-of-the-valley, another factor has undoubtedly some influence, namely, the preparations of convallaria differ widely in the proportions of the active principles which they contain, and many of them are practically inert.

Annie E., aged two years, was given nearly a teaspoonful of medicine, which her mother supposed was the fluid extract of cascara sagrada. About an hour later the attention of the mother was called to her mistake by the peculiar actions of the baby, and I was hastily summoned. I found that the bottle was labeled fluid extract of convallaria majalis.

The child seemed extremely restless, rolling and tossing about the bed, showing a continuous trembling of the arms and legs, with general convulsions once. She was aroused with great difficulty, and immediately relapsed into a stupor again. The pupils were dilated moderately. Axillary temperature 97° F., pulse 140 at times, and again so rapid that I was unable to count it, but always exceedingly irregular. Respirations were shallow and superficial, increased somewhat in rapidity, but very regular. The face was somewhat flushed. There was at no time any signs of gastro-intestinal irritation, and neither diuretic nor diaphoretic effect was observed. Under symptomatic

treatment the child gradually regained her normal condition.

This case was one of unusual interest to me because the literature on the subject is scanty, and opinions in regard to the physiological action of the drug so diverse. It furnishes another illustration of the gross carelessness of some persons in leaving medicine bottles scattered about the house, and using them freely without even the precaution of looking at the label.

J. H. ANDREW, M.D.

500 MADISON ST., BROOKLYN, N. Y.

#### *A CASE OF POISONING BY HONEY.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Mr. D., an attorney, aged fifty-four, on July 26, 1897, shortly after his midday meal, at which he had partaken freely of honey, felt a strange feeling come over him: an incessant burning of the forehead; all sorts of objects, wheels, strings, etc., appeared to pass before the eyes; his face felt flushed, but he was pale.

I saw him about one hour after his meal. There was extreme pallor, cold skin; heart weak and irregular. He was in a dazed condition; the eyes had a dull look, and he complained that he could not see.

I gave him an emetic (ipecac), but he soon had convulsive movements of the hands, which were controlled for the time by holding them firmly. A minute following there was a convulsion of the whole body. He did not become rigid, but unconscious, limp, and exhausted. His breathing was heavy and fast. This was soon followed by free vomiting. Consciousness now began to return. He had no recollection of what transpired during the few minutes previous to vomiting, and now complained of cold and exhaustion. I gave stimulants, whiskey and aromatic spirit of ammonia in hot water, and applied heat externally. It was about seven hours before he was comfortably warm.

After seven hours the only remaining symptoms were widely dilated pupils, a tingling sensation of tip and sides of tongue, and a feeling of exhaustion.

The honey was in the comb, freshly made, and had a decidedly bitter taste. Of several boxes examined, this was the only one that presented anything wrong, and that only in taste. He ate about a quarter of a pound.

Yours truly,

C. D. VOORHEES, M.D.

LA PORTE, PA.



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## Original Communications.

### *THE TREATMENT OF ACUTE INTUSSUSCEPTION IN YOUNG CHILDREN FROM THE STANDPOINT OF THE PHYSICIAN.\**

BY FREDERICK A. PACKARD, M.D.,  
Philadelphia.

I am led to write what follows partly by the comparative infrequency of intussusception, and chiefly by the fact that I refrained from employing the usual methods of treatment that lie within the field of internal medi-

cine as opposed to that of surgery. Justification for this course was found at operation, and my study of the literature of the subject showed plainly to me that the danger that I apprehended from non-operative mechanical interference was one that must not infrequently be present.

In contributing this case to the list of cases of intussusception I have selected from the large mass of literature a few cases that illustrate the points I wish to make, without endeavoring to add to the large number of statistical tables and articles dealing with this disease.

In regard to the frequency of intestinal invagination, I may state that since the foun-

\* Read before the Philadelphia Pediatric Society, Nov. 8, 1897.

dation of the Children's Hospital of Philadelphia, about forty years ago, no case of intussusception is found among the 7932 patients admitted to the wards before 1897. During the current year two cases have been admitted—one which came to the hospital during Dr. Griffith's term of service, the other which furnished the specimen shown to-night.

The child was a breast-fed girl aged eight months. She was first examined by me on September 18, two days after her admission to the Children's Hospital. She had then been ill for five days. The family history presented no features of interest. Until four weeks before her admission she had always been well and strong. At that time she began to have diarrhea and vomiting, her stools being bloody. These symptoms continued for ten days, during which time she was under treatment by a homeopath. At the end of the time mentioned she became better, but seems to have never entirely recovered her health. On September 13, three days before admission, the child began to vomit after nursing and diarrhea again set in, the stools being composed of blood and mucus. The number of movements was not excessive, there being but three on the day before admission. When brought to the hospital her temperature was 102° F., pulse 130, respiration 40. It was described by the resident physician as a well nourished baby with pale skin and mucous membranes, but without signs of rickets. The head was held slightly flexed, the neck muscles rigid, the pupils equal and natural. The two lower central incisors are noted as just emerging through the gum. She was perfectly conscious, but moaned a great deal, and the eyes were kept in constant motion from side to side. The lungs and heart were normal, the abdomen not distended but quite hard. It was at once given a drachm of castor oil, the bowel was cleansed by irrigation, and albumen water was ordered as the dietary. During this first afternoon there was one movement, which contained blood. That evening her temperature rose to 104° F. and continued at that point throughout the night. Before morning there were two watery, brown movements containing mucus. On the morning of the 17th the temperature was still 104° F., the pulse 120, respiration 24. During this day and the following night the child vomited all food taken (albumen water) and had five brown bowel movements containing blood and mucus. When my attention was

called to the child on the 18th it was lying on its back, slightly inclined toward the left side. The cheeks looked sunken, the eyes heavy and dull with dark rings beneath. The skin and mucous membranes had a deadly pallor, but the pulse was of fair force and volume. The tongue was dry and coated. Examination of the thorax revealed nothing abnormal. The abdomen was slightly retracted, but the walls were relaxed and soft. No visible tumor was present, but by palpation there was found a mass extending from the costal margin to the iliac crest far over on the left side. The tumor was distinctly curved in shape, the concavity being toward the right; it was slightly movable, but did not vary in shape, size or consistence during examination. During manipulation the child occasionally gave a slight whimper, but there was evidently no severe pain produced by the examination. The right iliac fossa gave a decided feeling of comparative emptiness. On removing the diaper the anus was seen to be widely open, and a fringe of rectal mucous membrane projected beyond it. The sphincters were completely relaxed. Digital examination of the rectum revealed a tumor of soft consistence, situated about one and three-fourths to two inches above the anus, readily outlined by the finger, and with a slit-like orifice easily admitting the finger-tip at its extremity. The diaper contained a dark semi-fluid stool having an almost putrid odor and evidently composed in great part of blood. There was a slight admixture of mucus, but no recognizable fecal matter.

For reasons that will be given below I decided not to endeavor to reduce the invagination by injections or inflation, but communicated with Dr. R. G. Le Conte, at the time acting as surgeon to the hospital; and on finding that he could operate at an early hour, turned the case over to his care.

Dr. Le Conte has kindly furnished me with his notes of the operation in order that I might incorporate them with this report. At 4 P.M. on the 18th of September Dr. Le Conte had the child etherized, and then made an incision in the median line below the umbilicus to the extent of one and three-fourths inches. The mass felt in the left loin could be easily brought up to the surface of the wound. The intussusciptions were formed by part of the transverse and the descending colon, the intussusceptum of the small intestine, cæcum, ascending and part of the transverse colon. Reduction was comparatively easy until the withdrawal reached a point

within an inch of the cæcum, when a considerable amount of force failed to advance it further. While Dr. Le Conte was attempting the reduction an assistant used upward pressure by a finger in the rectum. After some further manipulation, aided by passing a finger along the intussusceptum and separating it from the sheath as much as possible, the cæcum was finally delivered by firm traction. An enlarged mesenteric gland of the size of an almond was probably the cause of the difficulty. The peritoneum covering the invaginated gut showed spots of roughening, with absence of gloss. The invaginated bowel was dark in color, resembling liver, and the mesentery was very dark and much congested. Two perforated ulcers were found in the ascending colon a short distance above the cæcum. They were sharply defined, oval in shape, punched out, and with an opening on the serous side smaller than that in the muscular coat. The edges of the ulcers were very dark. No extravasation of fecal matter had occurred through these openings, and the surrounding peritoneum showed no sign of inflammation. The ulcers were closed with a continuous Lembert suture of fine silk and the abdominal wound sutured. The operation occupied about thirty minutes.

After the operation the child's condition was very bad, the skin being pale and "leaking," the pulse very rapid and weak. The temperature was 100° F., the respiration shallow and rapid. Death occurred about three hours after operation.

No general autopsy could be obtained, but permission was granted to reopen the abdominal wound. There was no sign of general peritonitis. The cæcum and ascending colon lay to the left of the median line. The specimen presented was removed and may be described thus: It consists of a small portion of the ileum, the vermiform appendix, the cæcum, and the colon as far as the splenic flexure. The transverse and ascending colon are much thickened, especially as regards the submucous coat. High up in the ascending colon, near the hepatic flexure, there are two lines of sutures representing the points of rupture found at operation. The serous coat of the large bowel is quite rough, especially toward the caput coli. On the anterior surface of the specimen, at the junction of the ileum and cæcum, is a layer of material looking like organized lymph. The invagination is thoroughly reduced. The ileocæcal valve is thickened, and its broad lips project fully four millimeters into the cavity of the cæcum.

There is decided thickening of the wall of the cæcum surrounding the valve.

To my mind there are several points of interest in the case. In the first place the diagnosis was easy because of the presence of bloody stools, a tumor readily palpable and of characteristic shape on the left side of the abdomen, and an easily recognized mass in the rectum. It is possible that this was a case of spontaneously reduced invagination with relapse. In spite of the presence of vomiting and bloody stools during the earlier attack, there was no other sign or symptom that could be found by questioning the mother, and that would warrant such a diagnosis. That such a late recurrence might occur is possible, Holt stating that in his collection of cases recurrence was noted in six per cent., and that while it was most common in the first twenty-four hours after reduction, it may occur at as long an interval as a month.

In this case there was no family tendency to the disease, such as has been noted by some authors (Bryant, Hirschsprung, and others).

As the child was first seen by me on the fifth day of its illness I endeavored to picture to myself the probable condition of affairs within the abdomen. This I felt must guide me in my course of treatment. I decided that by that time the invaginated intestine must have become much swollen from prolonged stasis of blood; that adhesions between the serous surfaces of the inner and middle cylinders had almost certainly formed; that sphacelation might already have begun from pressure upon the mesenteric vessels of the intussusceptum at the neck of the invagination; and that ulceration of the intussusceptum or of the sheath might very likely be present. I therefore decided that an attempt to reduce the invagination by injection or inflation would be fruitless because of adhesions, and dangerous because of the risk of perforation of the weakened and possibly ulcerated or sloughing cylinders. I therefore sent word to Dr. Le Conte that I considered the case one where the interference of the surgeon was alone justifiable. That such was the case is shown by the operation. Reduction by injection or inflation would have been impossible, not only because of the adhesions between the serous layers but by reason of the presence of the enlarged lymph node found at operation and seen in the specimen; while it would certainly not have saved life even if the invagination could have been

reduced, owing to the presence of the ulcerations that could not have been detected except at operation or autopsy.

Certainly but a short time must elapse after the formation of an intussusception before there is marked constriction of the blood-vessels (especially of the veins) of the intussusceptum. Not only is the mesentery necessarily crumpled up within the sheath, but there is so much distortion of the mesentery of the inner cylinders at the point of entrance that the return flow of blood must be rapidly and seriously diminished. Such a sudden interference with circulation must produce marked swelling of the intussusceptum from engorgement of the blood-vessels and from transudation into the tissues. At the same time the intussusceptum tends to become turned upon itself owing to the fact that the mesentery going to the apex is in a state of greater tension than is that of the proximal portion of the gut. According to Treves the thickening of the intussusceptum may be universal, but is usually most marked at the apex and along the convexity. The opposed serous surfaces covering the inner layer of the middle cylinder and the outer layer of the inner tube are in close juxtaposition and are placed in circumstances readily leading to the formation of adhesions. Prolonged interference with the blood paths leads to impairment of vitality in the two inner cylinders from faulty nutrition and from mechanical separation of their component parts by transudation from the engorged vessels. Sooner or later loss of substance occurs from either ulceration or sphacelation. According to D'Arcey Power, the stress of the trouble is borne most often by the submucous tissue and by the circular layer of muscle, the longitudinal muscular and serous coats being least affected. The sheath may not entirely escape, as in some cases it is found ulcerated, at times at many points. The impact of the apex of the intussusceptum may be sufficient to produce local ulceration of the sheath, which may perforate. General peritonitis, however, is not frequent, partly no doubt because the diseased mass is usually, so to speak, encapsulated by a fairly healthy cylinder whose mesentery has suffered no damage. The small amount of involvement of the sheath and the obstruction of return flow from the intussusceptum may limit the spread of the colon bacillus and other organisms, in that way accounting for the fact that Holt found among fifty-eight collected autopsies only

twenty cases showing peritonitis, in seven of which it was limited to the intussusception, while in seven there was perforation.

The conditions militating against reduction are, then, swelling of the intussusceptum, bending of the intussusceptum upon itself, cohesion of the entering and returning layers, adhesion of the serous surfaces in contact, and finally (a point brought out clearly by Braun) plication of the sheath near the point of entrance, whereby the sheath is much thickened and the neck of the sac rendered more rigid. In the case herein reported there was a still more powerful impediment to reduction in the enlarged mesenteric gland. I have nowhere seen this mentioned as a cause of irreducibility, yet it is easy to conceive of the possibility of its frequency. In the ileocæcal form, with which alone I have dealt, the swelling of the lips of the ileocæcal valve forms a distinct obstacle to reduction. The mechanism of this obstruction can be well seen in the specimen.

Statements regarding the time at which the various changes in the intussusceptum take place vary widely. Most authors state that the earliest time for the formation of adhesions is the third day, although many give the fourth as the usual time. They are, however, often absent at an even later time. Sphacelation is usually a rather late event, of necessarily variable rapidity and degree in different cases, although Jalaguier states that it generally first shows itself at the end of from two to three days, while Wiggan cites a case with gangrene of the gut twenty-eight hours after the onset, and Broca encountered gangrene at the end of thirty hours.

The exact time of occurrence of these various accidents which may prevent reduction or render it dangerous when performed without inspection of the parts involved cannot be laid down absolutely. A few cases from literature will serve to show this uncertainty in time of development. Mortimer, in a three months' old child which died thirty-six hours after the onset of an intussusception that was supposed to have been reduced by insufflation, found already a little soft lymph at the point of reflection and some injection of the sheath. D'Arcey Power describes a specimen removed from a nine months' old child dead thirty-six hours after the onset of the illness. There was very little, if any, thickening of the mucous membrane, but the surface was covered by a layer of coagulated blood.

There was edema of the whole submucous layer and also extravasation of blood and formation of inflammatory products therein. The veins of the submucosa were congested, and this layer contained many huge capillaries. There was also edema of the circular and longitudinal layers of muscular tissue. Adhesions throughout the whole extent of the adjacent serous surfaces of the inner and middle cylinders were found by Rotch in a case dead on the third day. In a child aged eight months that had been ill for three days with intussusception, Power found all parts of the invaginated intestine seriously damaged, with great congestion of the blood-vessels, round-celled infiltration, extravasation of red blood cells, and dense adhesions between the serous layers of the two inner cylinders. Bryant records a case in a child aged six months admitted on the second day of the disease. On the day after admission (only the third day of the illness) death resulted promptly after insufflation of the bowel with air; and at autopsy there were found two perforations, one at the splenic, the other in the sigmoid flexure. Pilz found a small oval opening near the beginning of the intussusception which had perforated into the peritoneal cavity and caused death on the fourth day of the disease. In Wiggin's paper perforation is stated to have been present in two of his cases on the fourth day, although in both of these injections had possibly caused the lesion and the cases should not be considered in estimating the lesions present on the fourth day of the illness. Mortimer records a case wherein gangrene was established on the fifth day, to offset which a case is reported by Wiggin where adhesions were absent although the lesion had existed for the same length of time. Bryant records a case of ulceration present at the point of constriction at the entrance on the fifth day of the disease, and another wherein on the seventh day there was sloughing of the mucous membrane near the ileocaecal valve without any adhesion between the serous layers. Mortimer gives a case dead on the eighth day with three ruptures in the descending colon, one of which had rounded edges as though several days old.

It will be seen from these examples how variable is the extent of pathological changes in different cases at various periods after onset. Unfortunately without actual inspection of the parts involved we have no means for exactly estimating the conditions that may be present in a given case.

It would seem from the examples selected that practically at no time can we be absolutely sure that no contraindication to an attempt at reposition exists. As a matter of fact, however, there is a sufficient number of cases reported of cure following injection or inflation to make it advisable to attempt reduction by these measures during the early course of the disease.

The question as to the period during which it is justifiable to resort to mechanical (non-surgical) methods by distention of the bowel is important, not only from the standpoint of probable success or failure, but also in regard to safety. A few opinions in regard to this point may be selected. Eustace Smith says that mechanical interference is only permissible during the first few days and is useless if the mass be tender. Ashhurst says that injections are most likely to be successful in the first two days, but after that period should not be tried. Rotch states that in "the early hours" attempts should be made to reduce by hydrostatic pressure. Starr gives the first four days as the limit of time for the use of distention, but not even then if the mass be tender. Holt says that if three or four days have passed without symptoms indicating strangulation, it is admissible to try more than two inflations at intervals of three or four hours. Keen gives the first forty-eight hours as the time during which alone distention can do good, and that after that time has elapsed there is danger of rupture. Monti says that better results occur in early cases than in those existing for many days; nevertheless he holds "as fully justifiable the view already pronounced by authors to in all cases try water irrigation or air insufflation." Jalaguier says that distention is only to be tried if the case is seen at the onset. Leichtenstern rather vaguely states that "if the invagination has lasted for some time, if it has become fixed and chronic, or if there are signs of gangrene and impending separation, if general peritonitis or perforation is present, no prudent physician will make any attempts at reduction."

It may be said, then, that all mechanical attempts at reduction should be performed with the greatest care and gentleness, that they should be employed at as early a time as possible, and that after the third day they promise but little success and are capable of doing great damage.

At the present time no one would venture to support the plan of allowing (in young children) Nature to effect a cure by separa-

tion of the intussusceptum—a plan that has, according to Treves, a death-rate of forty per cent. among the forty-two per cent. in which separation takes place when the case is left to Nature. According to Widerhofer, among the forty-six cases of the combined tables of Leichtenstern, Pilz, and himself, where separation occurred, seventeen died, twenty-seven survived, while in two the result was unknown; and, he adds, even in these so-called cases of recovery death usually occurs in from one to two years. In very young children (and especially in infants) death may be expected before Nature has had time to cast off the slough.

All authors are in accord regarding the use of opium before all non-sanguinary efforts at relief, although the exact form and channel of administration advised differ somewhat. Thus, Eustace Smith and Rilliet and Barthez advise the subcutaneous use of morphine, while almost all other writers recommend the use of opium or laudanum by mouth or rectum. Monti has urged the employment of a warm bath for its relaxing effect before any measures are employed. Anesthetization by chloroform or ether is universally advocated.

Considerable difference of opinion exists regarding the advisability of employing abdominal massage as an aid in reduction. Thus, Hirschsprung recommends that it should be tried before injections are employed, while Jalaguier condemns it as useless and dangerous. It is difficult to appreciate in what way it could be of great value, while the danger of exciting peristalsis, and so defeating its object, would seem to contraindicate its use. Of the various media for use in the mechanical reduction by distention may be mentioned water, air, olive oil, milk, thin gruel, and normal salt solution. Of these water and air are most generally recommended. Whatever medium may be selected, it is important that we should be able to accurately measure the amount of force that we are employing. This is most easily calculated in the case of water or watery solutions entering by gravity, and is practically impossible in the case of air or gases unless we happen to have at hand a compressed air apparatus or cylinder with pressure gauge. The use of solutions, union of which in the bowel will cause the evolution of gas, must manifestly be extremely dangerous inasmuch as we have no means of estimating the distending force exerted upon the bowel wall.

It must be remembered in using fluids that the pressure exerted by them acts equally in all directions and that, unlike a solid means of reposition, such as the discarded and in practically all cases useless sound, it does not simply exert its force in the direction of the lumen of the bowel. The advantage which this property gives is that, while pressure is exerted at the apex of the intussusceptum, the sheath is at the same time distended, thereby removing it from the intussusceptum and thus aiding the retrogression of the latter. The very fact of this lateral as well as forward pressure is, however, a distinct source of danger.

The most rational fluid for use, to my mind, is normal salt solution, owing to the fact that it is readily obtainable, is bland enough to prevent any irritation save by its bulk, and causes no disturbance by osmosis.

The temperature of the fluid used is a question whereon there is some difference of opinion. Most authors recommend the use of warm water (100° to 105° F.), but no less an authority than Baginsky states that it is better to use cold than warm water. Monti, the strongest advocate of the use of iced water enemas, begins irrigation with tepid water and at the conclusion of the process uses a half to one liter of iced water in order to induce peristalsis while pressure is high and to so reduce the invagination. He relates the case of a seven months' old child, seen on the fourth day of its illness, where repeated failure followed the use of the sound and injections of tepid water, but on the sixth day the injection of a liter of iced water was successful. Elliott mentions a case in which inflation with air and injection with warm water failed, but an enema of iced water was successful on the second day of the disease. Hensch relates several cases in support of this plan, but in some of his cases the diagnosis must be considered doubtful, as he himself seems to admit. Iced water is condemned by Leichtenstern, who ranks it with turpentine and carbonic acid water as promoters of peristalsis. In this connection the question suggests itself whether peristalsis under any circumstances can aid in the reduction. If we grant the possibility of reversed peristalsis (anti-peristalsis) we can see how possibly such movement might aid in reduction; but it has not been proven, so far as I can find, that we can by iced water or by any other means start such a reversion of the intestine within the unopened abdomen. If reversed peristalsis is not excited by iced

water enemata the tendency would be for the excitation of peristalsis to cause further propulsion of the intussusceptum into the sheath. The volume pressure of fluid injected would probably neutralize this tendency to forward projection, in which case any good effects of peristalsis, such as are claimed by Monti, would be overcome. Peristalsis, according to the experiments of Cash, is a comparatively weak force, overcome in the dog by an opposition of from five to eight grammes. This, however, may not apply to an intestine in which excessive peristalsis is stimulated not only by the lesion present but also by the cold injections. If, therefore, the peristalsis is thus neutralized, it is difficult to explain any advantage to be derived from the use of iced water enemata, inasmuch as their property of coldness might seriously depress the vitality of the patient, and it is inconceivable that cold or any other astringent could diminish the size of the intestinal plug.

In giving enemata the position of the patient is a point of importance. The position usually advocated is that on the back with the hips elevated and the patient turned slightly toward the left side. Monti recommends the knee-elbow position; others, among whom is Baginsky, advise the inversion of the patient, a procedure characterized by Treves as "a violent measure which neither on theoretical nor on practical grounds has anything to recommend it."

It can be readily appreciated that one of the most important things to observe in the use of fluid pressure is the avoidance of such force as to cause rupture of the bowel. It is also necessary to bear in mind that the longer the lesion has persisted, the more marked are the tissue changes in the bowel wall and the greater is its liability to rupture. The exact determination of the resisting power of the wall of the bowel in an individual case cannot be determined, yet the supposition that the younger the lesion the higher the breaking-strain must be accepted as in general true. In order to determine the resisting power of the intestine to pressure, experiments have been tried upon the cadaver by various authors. Inasmuch, however, as the subjects used died from lesions unconnected with the intestinal tract, a few only will be mentioned here. Forest found that in the body of a child a few months old, after ligating the ileum a pressure of nine and three-quarter pounds to the square inch was required to rupture the transverse colon at

the middle of its anterior surface, and that when the small intestine was thus ligated in other subjects the point of rupture was never at the seat of obstruction, but in the colon. When the ileum was not ligated, in a case dead of marasmus, he says that "it seemed almost impossible to rupture the intestine by pressure, so long as the nose or mouth was pervious"—a condition that for practical purposes does not exist in intussusception, where the large bowel is occluded above the seat of pressure by the invaginated plug. Mortimer, on the other hand, in his experiments upon two-year-old children in the post mortem room, found that a pressure of two and a half pounds (five feet elevation) was apt to cause "cracking of the peritoneum," an occurrence that usually took place when the reservoir was raised to eight feet, and that at an elevation of six feet there might be complete rupture of the bowel. Mole found that in a child aged five years the colon ruptured after the passage of five pints of water at a pressure of four feet. These experiments, it must be remembered, were made upon children without grave intestinal lesion. More instructive, for our purpose, is Mortimer's experiment upon a child dead of intussusception. The patient, aged three months, was treated with supposed success by inflation. Death occurred at the thirty-sixth hour. A tube was passed into the rectum and connected with a reservoir at a height of two feet. In a few minutes there occurred partial reduction of the invagination. After fifteen minutes the irrigator was raised to three feet; this caused a slight increase in the reduction, but soon stopped, and in four minutes the colon ruptured in three places just below the invagination.

In using irrigation the fountain syringe is certainly preferable to those depending upon hand pressure, which is necessarily intermittent and incapable of measurement, while the steadiness of hydrostatic pressure prevents excitation of peristalsis and diminishes the danger of rupture from sudden increase of pressure. The height to which the reservoir should be raised is a question of importance. The extreme elevation that I have found recommended is that by Forest, who says that six pounds to the square inch (an elevation of fifteen feet) is safe within three or four days of the inception of the attack. The same author recommends, as preferable to performing laparotomy or depending upon cure by sloughing in children under six years

of age, a pressure of six pounds to the square inch, or, if this fails, to raise the pressure to eight or even nine pounds (twenty to twenty-five feet elevation). Most authors, however, are more moderate, and are unanimous, so far as I have consulted them, in condemning any elevation greater than eight feet, and usually recommend an initial elevation of three feet with a gradual increase in the height of the reservoir up to the point mentioned. Some authors recommend the higher pressures for the cases of greatest duration, the reverse, to my mind, of what pathology would teach as the proper rule.

The time after onset at which injection is practised has much to do with the success or failure of the method. Thus, Eccles has tabulated twenty-one cases in children. The number is small, but the effect striking. One of these was treated on the first day and recovered (recovery in 100 per cent.); six were treated on the second day, of which four recovered (recovery in sixty-six per cent.); eight were treated on the third day, of which two recovered (recovery in twenty-five per cent.); six were treated on the fourth day, of which none recovered. Holt has collected forty-six cases cured by injections or inflations. Of these, sixteen were treated on the first day, fifteen on the second, three on the third, eleven on the fourth, and one on the fifth day. Of the sixteen cases successfully treated by distention in Wiggin's table none were of more than three days' standing, the average time of cure being on the forty-first hour, while twenty-three cases that died had an average duration of sixty-nine hours.

That rupture can readily occur from distention is shown by cases related by Bryant, Wiggin, Mortimer, Widerhofer, and many other writers of analytical papers and monographs, as well as by many isolated reports in the medical journals. How many times the bowel has been ruptured by injections and inflations and the case not reported cannot even be surmised.

To return to my case, the subject of this paper. It is evident from the account given by Dr. Le Conte that an injection would have probably caused immediate escape of the fluid into the peritoneal cavity through the perforations found at operation. It is quite possible that, even if the bowel had not perforated, reduction could not have been completely effected owing to the presence of the enlarged mesenteric gland, and that a false assurance of successful reduction might have prevented the undertaking of further

attempts to save the child's life. It may be said that the child died at any rate. That is true, but it died after the best course in our opinion had been adopted; and I have not the uncomfortable knowledge that by my treatment I produced perforation of the bowel in a case that might have been saved.

It might be judged from what I have written that I do not believe in endeavoring to effect reduction by distention of the bowel. Such is not the case; but I do believe that injections are dangerous and oftentimes useless after the third day; that before that date, unless otherwise contraindicated, it is proper to attempt reduction by the use of one thoroughly executed injection, upon failure of which surgical aid should be at once summoned without loss of time from further attempts by a procedure that should be thoroughly and conscientiously applied in the first instance. I wish finally to protest against such a procedure as that advocated by one author, to keep the child in the hallway and to carry the reservoir of the irrigator up the stairway. The height of the ceiling of an ordinary room is more than enough to allow of the reservoir being elevated sufficiently to rupture the healthy bowel, to say nothing of an intestine seriously damaged by disease.

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**THE REAL VALUE OF THE BRAND BATH  
IN TYPHOID FEVER.**

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As its title indicates, the object of this paper is to discuss the real value of the cold bath treatment of typhoid fever by a study of the statistics and facts which are now before the profession concerning it. It is sometimes wise when a plan of treatment seems to be particularly effective to analyze its results to determine its real value, for as Cabot has well said recently in a paper on the routine use of alcohol in fevers, the progress of therapeutics is seriously hindered by the fact that every case is given the best treatment known, and so we are satisfied with it. We desire to state at the outset that we fully recognize the great usefulness of the cold bath of Brand, although it may seem in the course of our paper that we are attempting to cast discredit upon it. On the contrary we desire first to determine its actual value, and second to inquire whether its routine use is wise.

When the physician begins to study this subject he is met by the statement that the mortality, which was at one time no less than twenty-five per cent., can be reduced by the cold bath to from ten to seven per cent. As a matter of fact a mortality of twenty-five per cent. has not been commonly met with for many years, and the largest body of statistics yet collected giving this death-rate are those made in Germany and France many years ago, when the disease was particularly virulent, when only severe cases were recognized and classified, and further, when owing to what may be called barbarous treatment the patients who survived fought their way against infection and treatment. Further, hospital facilities were comparatively poor, nursing ineffectual, and sanitation wretched.

That severe cases chiefly entered into these statistics is proved by the statements of Griesinger and Strümpel, who point out that numerous light and rudimentary attacks (typhus levissimus) were not recognized till lately as belonging to typhoid fever at all.

That the treatment was calculated to increase the mortality is shown by Vogl's statement that it consisted in venesection, emesis and catharsis, and free use of mercury. That

the hospital facilities were wretched in many instances as compared to those of to-day is notorious (see Baas, History of Medicine), and the history of individual cases and the results of the analysis of large bodies of statistics impress upon us the important fact that among the poor who have not hospital care, and in armies where the patients are not cared for when in the field as is possible when at home, the death-rate is very high and the signs of disease severe.

Improvement in sanitation has decreased the frequency and mortality of this disease remarkably, as is shown by statistics.

Mosny has shown that the death-rate of Vienna decreased from 12.05 per 10,000 to 1.1 after a pure water-supply. In Dantzic the mortality has fallen from 10 per 10,000 to 2.4, and finally to 1.5 per 10,000. In Stockholm it has fallen from 5.1 in 1877 to 1.7 in 1887. So too in Boston from 17.4 in 1846-49 to 5.6 in 1870-84.

The following table is of interest in this connection:

MORTALITY IN MUNICH FROM 1851 TO 1873.

| Year.     | Inhabitants. | Annual. | Per 100,000 Inhabitants. | Year.     | Inhabitants. | Annual. | Per 100,000 Inhabitants. |
|-----------|--------------|---------|--------------------------|-----------|--------------|---------|--------------------------|
| 1851..    | 123,957      | 123     | 99.0                     | 1874..... | 181,300      | 289     | 159.0                    |
| 1852..... | 125,588      | 152     | 121.0                    | 1875..... | 187,200      | 227     | 121.0                    |
| 1853..... | 127,219      | 235     | 184.0                    | 1876..... | 193,024      | 130     | 67.0                     |
| 1854..... | 128,850      | 293     | 227.0                    | 1877..... | 205,000      | 173     | 84.0                     |
| 1855..... | 130,481      | 253     | 193.0                    | 1878..... | 211,300      | 116     | 55.0                     |
| 1856..... | 132,112      | 384     | 291.0                    | 1879..... | 217,400      | 236     | 109.0                    |
| 1857..... | 133,847      | 390     | 291.0                    | 1880..... | 223,700      | 160     | 72.0                     |
| 1858..... | 135,733      | 453     | 334.0                    | 1881..... | 230,028      | 41      | 18.0                     |
| 1859..... | 137,005      | 240     | 175.0                    | 1882..... | 236,400      | 42      | 18.0                     |
| 1860..... | 140,024      | 153     | 109.0                    | 1883..... | 242,800      | 45      | 19.0                     |
| 1861..... | 144,334      | 172     | 119.0                    | 1884..... | 249,200      | 34      | 14.0                     |
| 1862..... | 148,200      | 300     | 202.0                    | 1885..... | 255,600      | 45      | 18.0                     |
| 1863..... | 154,602      | 252     | 163.0                    | 1886..... | 262,000      | 55      | 21.0                     |
| 1864..... | 160,828      | 397     | 247.0                    | 1887..... | 268,400      | 28      | 10.0                     |
| 1865..... | 167,054      | 338     | 202.0                    | 1888..... | 272,500      | 31      | 10.5                     |
| 1866..... | 168,265      | 342     | 203.0                    | 1889..... | 300,000      | 31      | 10.1                     |
| 1867..... | 169,476      | 88      | 52.0                     | 1890..... | 331,000      | 28      | 8.5                      |
| 1868..... | 170,688      | 136     | 80.0                     | 1891..... | 357,000      | 24      | 6.4                      |
| 1869..... | 170,000      | 190     | 111.0                    | 1892..... | 372,000      | 11      | 3.0                      |
| 1870..... | 170,000      | 254     | 149.0                    | 1893..... | 385,000      | 57      | 14.8                     |
| 1871..... | 170,000      | 220     | 129.0                    | 1894..... | 393,000      | 10      | 2.5                      |
| 1872..... | 169,693      | 407     | 240.0                    | 1895..... | 400,000      | 15      | 3.7                      |
| 1873..... | 175,500      | 230     | 131.1                    | 1896..... | 412,000      | 14      | 3.4                      |

\*This table is taken from Pettenkofer's "Munich a Healthy City" up to 1887 inclusive; after 1887 from returns obtained from the Statistical Bureau.

The effect of improved sanitation is to decrease the virulency of infection, and for this reason there follows a decreased severity of illness and a decreased percentage mortality.

For these reasons then we shall exclude the statistics of 1840, 1850 and 1860 from comparison and confine ourselves to more recent statistics more suitable for this purpose. This is the more important when we discover that the frequency, severity and mortality of typhoid fever is steadily de-

creasing all over the world, as is shown by the following interesting tables of Dreschfeld in regard to England in general and London and Manchester in particular:

ANNUAL MORTALITY, PER MILLION PERSONS LIVING, FROM FEVER IN ENGLAND.

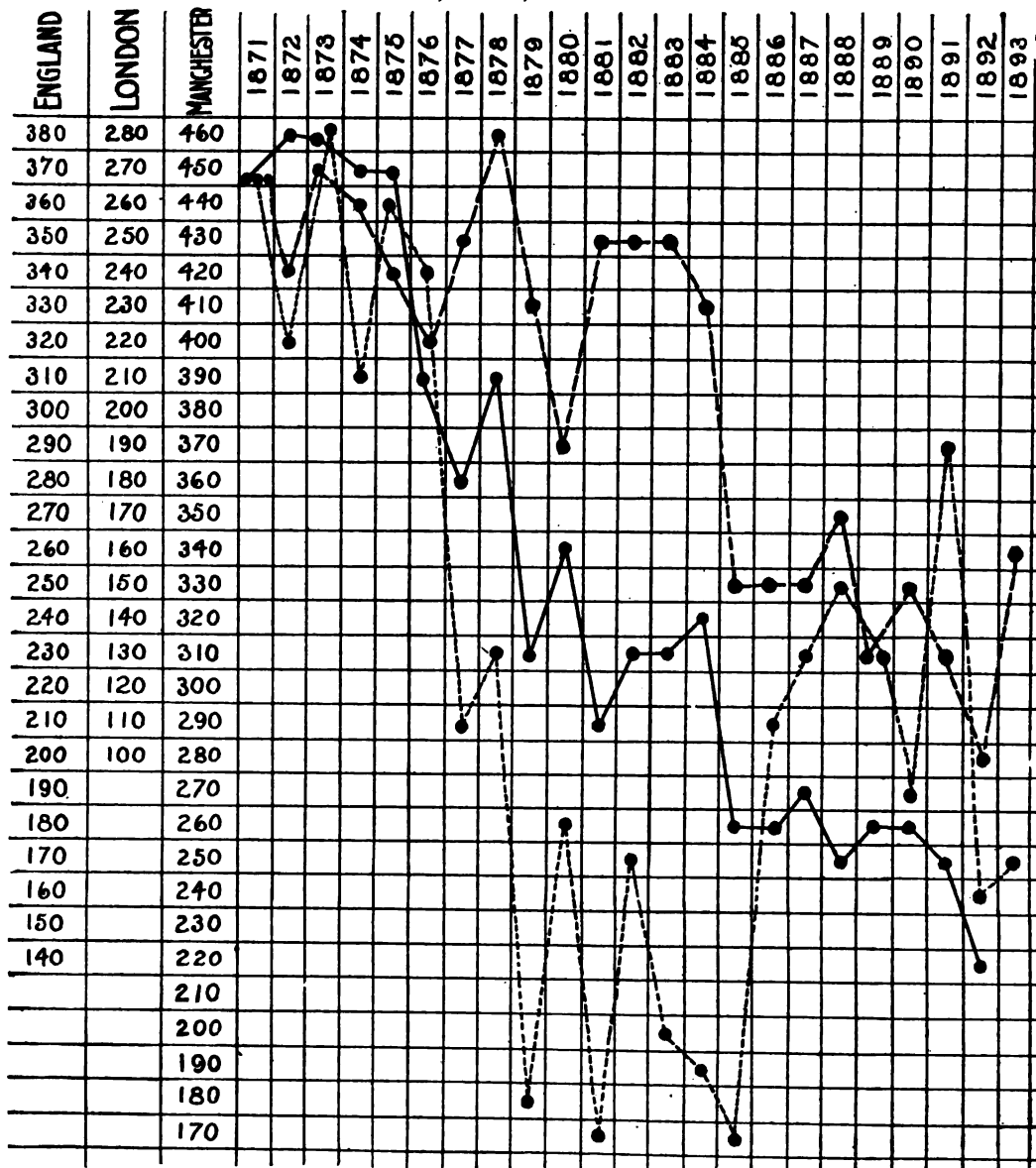
| Period.   | Enteric Cases. | Period.   | Enteric Cases. | Period.   | Enteric Cases. |
|-----------|----------------|-----------|----------------|-----------|----------------|
| 1838..... | 1228           | 1857..... | 983            | 1875..... | 371            |
| 1839..... | 1010           | 1858..... | 918            | 1876..... | 309            |
| 1840..... | 1089           | 1859..... | 806            | 1877..... | 279            |
| 1841..... | 932            | 1860..... | 652            | 1878..... | 306            |
| 1842..... | 1004           | 1861..... | 767            | 1879..... | 231            |
| 1843..... | .....          | 1862..... | 919            | 1880..... | 261            |
| 1844..... | .....          | 1863..... | 874            | 1881..... | 212            |
| 1845..... | .....          | 1864..... | 960            | 1882..... | 220            |
| 1846..... | .....          | 1865..... | 1089           | 1883..... | 228            |
| 1847..... | 1807           | 1866..... | 986            | 1884..... | 236            |
| 1848..... | 1266           | 1867..... | 778            | 1885..... | 175            |
| 1849..... | 1044           | 1868..... | 895            | 1886..... | 184            |
| 1850..... | 865            | 1869..... | 390            | 1887..... | 185            |
| 1851..... | 997            | 1870..... | 388            | 1888..... | 172            |
| 1852..... | 1022           | 1871..... | 371            | 1889..... | 176            |
| 1853..... | 1008           | 1872..... | 377            | 1890..... | 179            |
| 1854..... | 1015           | 1873..... | 376            | 1891..... | 168            |
| 1855..... | 875            | 1874..... | 374            | 1892..... | 137            |
| 1856..... | 847            |           |                |           |                |

DEATH-RATE FROM ENTERIC FEVER IN LONDON AND MANCHESTER PER 1,000,000.

| Year.     | London. | Manchester. |
|-----------|---------|-------------|
| 1871..... | 267     | 450         |
| 1872..... | 248     | 400         |
| 1873..... | 260     | 460         |
| 1874..... | 256     | 390         |
| 1875..... | 235     | 440         |
| 1876..... | 217     | 430         |
| 1877..... | 251     | 390         |
| 1878..... | 283     | 310         |
| 1879..... | 220     | 180         |
| 1880..... | 186     | 260         |
| 1881..... | 254     | 170         |
| 1882..... | 252     | 250         |
| 1883..... | 247     | 260         |
| 1884..... | 234     | 190         |
| 1885..... | 150     | 170         |
| 1886..... | 154     | 290         |
| 1887..... | 151     | 310         |
| 1888..... | 169     | 130         |
| 1889..... | 139     | 310         |
| 1890..... | 146     | 270         |
| 1891..... | 132     | 370         |
| 1892..... | 102     | 240         |
| 1893..... | 161     | 250         |

These figures are exhibited graphically in the following chart:

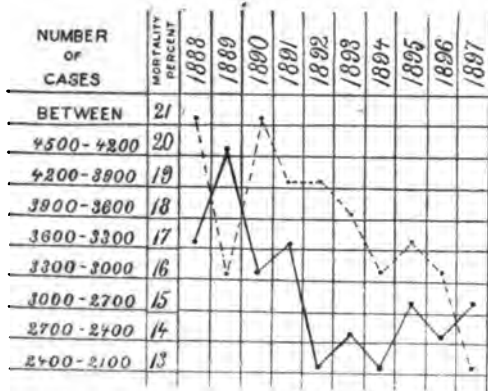
CHART NO. I.—SHOWING DECREASING MORTALITY OF TYPHOID FEVER PER MILLION PERSONS LIVING IN ENGLAND, LONDON, AND MANCHESTER.



Not only is the decrease in mortality seen in England, but in Philadelphia and New York, as follows.

The decrease in cases and in mortality is shown in the following chart in broken and complete lines (Chart No. 2):

CHART NO. 2.—SHOWING DECREASING NUMBER OF CASES AND DECREASING PERCENTAGE OF MORTALITY OF THESE CASES IN PHILADELPHIA.



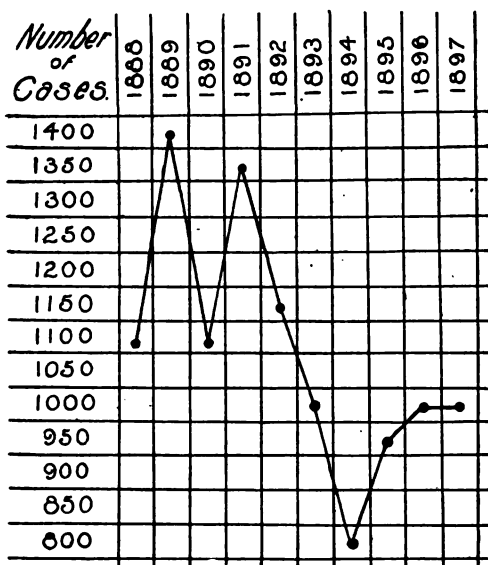
Broken line represents mortality per cent.

PHILADELPHIA.\*

| Year.     | Cases. | Deaths. | Per cent. of mortality. |
|-----------|--------|---------|-------------------------|
| 1888..... | 3573   | 785     | 21.9                    |
| 1889..... | 4631   | 736     | 15.8                    |
| 1890..... | 3182   | 566     | 20.9                    |
| 1891..... | 3531   | 683     | 19.3                    |
| 1892..... | 2304   | 440     | 19.1                    |
| 1893..... | 2519   | 456     | 18.1                    |
| 1894..... | 2357   | 370     | 15.7                    |
| 1895..... | 2748   | 469     | 17.0                    |
| 1896..... | 2490   | 402     | 16.1                    |
| 1897..... | 2994   | 401     | 13.3                    |

\*These statistics go back as far as the comparative records extend.

CHART NO. 3.—SHOWING DECREASING NUMBER OF CASES<sup>3</sup> ANNUALLY IN NEW YORK.\*



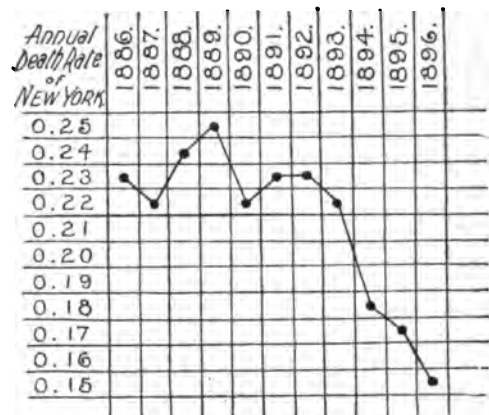
\*A comparative chart of the number of cases and of mortality per cent. from these figures is not given, as Dr. Biggs, of the New York Health Office, writes that only recently have the cases been generally reported and even now many are not reported.

NEW YORK.

| Year.     | Cases. | Deaths. |
|-----------|--------|---------|
| 1888..... | 1108   | 364     |
| 1889..... | 1474   | 397     |
| 1890..... | 1100   | 352     |
| 1891..... | 1342   | 384     |
| 1892..... | 1149   | 400     |
| 1893..... | 1068   | 381     |
| 1894..... | 792    | 326     |
| 1895..... | 965    | 322     |
| 1896..... | 1002   | 297     |
| 1897..... | 1004   | 299     |

The following chart from the New York Health Report shows a decreasing death-rate from typhoid fever (Chart 4):

CHART NO. 4.—SHOWING DECREASING DEATH-RATE FROM TYPHOID IN NEW YORK CITY.



When we consider that the population of these cities has increased enormously the great decrease in the disease is very notable.

These tables are supported by the statement of Billings that in Norway from 1888 to 1891 the mortality from typhoid fever was 755 in 7467 cases, or less than ten per cent. In the present Maidstone epidemic the death-rate in 1885 cases is only 7.5 per cent., and a similar mortality obtained at Plymouth, Pa. Again, in the *Gazette Médicale des Hôpitaux* of July 10, 1890, we learn that a collective investigation showed that whereas in the period from 1866 to 1881 the mortality from typhoid was 21.5 per cent., from 1882 to 1888 it was 14.1 per cent.; in 1889, 13.5 per cent.

It is evident therefore that the mortality to-day should be placed at less than fifteen per cent. as a fair percentage, the more so as many years ago Murchison placed it at 17.45 among 27,951 cases in England.

Assuming, then, that the ordinary mortality of typhoid fever is at present about fifteen per cent., the question arises, How much credit is to be given to the cold bath method for the reduction, claimed by its advocates to be about seven or eight per cent.? It is well in this connection for us to remember that a disease that cannot be aborted and which runs a definite course till it is completed will

do less damage to the patient if the case is guided through the storm so that his natural processes are not perverted than if by meddling or absolutely harmful treatment his organs, already bearing the burden of disease, are still further strained by the influence of unnecessary drugs and by the necessity of absorbing and eliminating them.

The best treatment for typhoid fever is to let drugs alone so far as possible. It is evident, therefore, that if a given routine is followed which is manifestly not incorrect in its fundamental details, better results will be obtained than if each physician steers his patient on a course of his own choosing, which may not only be useless but actually dangerous.

This is shown by the facts presented by Liebermeister in his well known article in Ziemssen's Cyclopaedia, in which he gives carefully prepared tables of 839 cases, of which 377 were treated non-specifically, with a mortality of 18.3 per cent.; 223 treated by full doses of calomel, with a mortality of 11.7 per cent.; and 239 with iodine, with a mortality of 14.6 per cent. If the grave cases are included in his statistics the mortality of a general plan of treatment was 25.3, those treated with calomel 16.3, and with iodine 17.2 per cent. A routine treatment here gave a saving of life nearly as great as the cold bath treatment often does, the difference between fifteen and seven per cent. Liebermeister adds that he has compared fifty cases treated with calomel, fifty with iodine, and fifty by general indefinite measures, selecting those admitted about the same time and all of whom were looked upon as grave cases in their early history. All the calomel cases recovered, and yet he rejected all cases which did not reach an axillary temperature of 104° F. or over.

Bouchard with intestinal antiseptics, quinine, cool bathing, etc., had a mortality of 11.16 per cent. as against twenty-one per cent. on the old general plan of treatment; while Mason records 676 cases with a mortality of ten per cent. under cool sponging, intestinal antiseptics in some instances, and symptomatic treatment. Under a similar plan Jaccoud lost out of 655 cases 10.8 per cent. Riess in 900 cases with the use of tepid baths had a mortality of seven to eight per cent., and under pure expectant treatment with plenty of water to drink Debove had at the Hôpital Andral 9.2 per cent. (See also Colle's statistics about to be quoted.)

Of very great interest in this connection are the results recorded by A. L. Mason in

the *Boston Medical and Surgical Journal* of April 14, 1892. During 1890-91 there were treated in the Boston City Hospital 676 cases of typhoid fever, of which seventy-five were fatal, or 10.4 per cent. This includes all cases—mild, moribund, or doubtful—which entered the house. To illustrate how statistics may mislead Mason records five different series of cases, aggregating 242 cases, with five deaths, or a mortality of about two per cent. The treatment consisted not in the Brand method, but in sponging and affusions, the use of antipyretic drugs, antiseptics, and tonics.

The following table contains a large number of cases treated without baths:

|  | Cases. | Per cent. of Mortality. | Treatment.                     |
|--|--------|-------------------------|--------------------------------|
| Basel (Liebermeister).....                 | 223    | 11.7                    | Calomel.                       |
| Basel (Liebermeister).....                 | 239    | 14.6                    | Iodine.                        |
| Maidstone, England.....                    | 1,885  | 7.5                     | General.                       |
| Boston (Mason).....                        | 676    | 10.4                    | General.                       |
| Homerton (Collie).....                     | 677    | 9.5                     | General.                       |
| Glasgow (Collie).....                      | 618    | 8.2                     | General.                       |
| Société Médicale des Hôpitaux (1879)*..... | 1,779  | 12.47                   | .....                          |
| Jaccoud.....                               | 665    | 10.8                    | General.                       |
| Riess.....                                 | 900    | 7.5                     | Tepid baths.                   |
| Boston (Shattuck).....                     | 237    | 9.8                     | Expectantly and cold sponging. |
| Germany (?) Brand has collected.....       | 19,017 | 7.8                     | All kinds of cold baths.       |
|  | 27,116 | 10.02                   |                                |

\*These statistics are based upon the fact that twenty-one chiefs of hospital service reported to the Société Médicale des Hôpitaux (1890) 916 cases with 114 deaths, or 12.44 per cent., under general treatment; and for 1888 and 1889 this report also mentions 1063 cases so treated with 133 deaths, or 12.51 per cent.

In other words, 27,116 cases in Switzerland, America, England, Germany and France show that good nursing and careful non-meddlesome treatment will give a mortality of about ten per cent. It may be argued that these cases cannot be compared with cold bath methods, but the wide distribution of the cases and the large number of clinicians certainly give us what may be called a standard average. The reduction in mortality to ten per cent. is therefore due to good nursing and treatment, and the further reduction to 7.5 per cent. claimed by Brand advocates only amounts to about 2.5 per cent.

Admitting, then, that a harmless form of treatment with careful nursing naturally modifies typhoid fever, these factors must be deducted from the credit given to the cold bath of Brand (which gives 7.5 per cent.) before we can reach real facts as to the value of this plan *per se*, for in it careful nursing is a *sine qua non* to its use and only such medication is resorted to as is needed to control symptoms or accidents. Again, one other factor is not to be ignored, namely, that it is

an almost universal practise to use alcohol in the cold bath treatment, and this stimulation, often repeated many times a day, by means of a drug which lends force to the system, is to be credited with some effect. To emphasize still more the fact that good nursing and treatment modify the mortality without the bath, we can quote the figures of Collie comparing the death-rate in Basel with that elsewhere in the same years with and without the bath.

At Basel in 1873, under the cold bath, there were 163 cases with a mortality of 10.4 per cent.; during the same year at Glasgow without baths 275 cases with a mortality of 9.4 per cent.; and 305 at Homerton with a mortality of 9.5 per cent. In 1874 at Basel the water cases were 200 with a mortality of 10.5 per cent.; at Homerton 372 with a mortality of 9.6 per cent.; at Glasgow 343 with a mortality of seven per cent. As Collie well points out, it is likely that the cases in Glasgow with 500,000 population and East London with 1,000,000 would be more severe than in Basel, a county town of 40,000 to 50,000 people.

TABLE SHOWING MORTALITY UNDER GENERAL TREATMENT TO BE LESS THAN UNDER BATH TREATMENT.

|                      | Number of Cases. | Treatment. | Mortality Per cent. |
|----------------------|------------------|------------|---------------------|
| Basel (1873).....    | 163              | Bath.      | 10.4                |
| Glasgow (1873).....  | 275              | General.   | 9.4                 |
| Homerton (1873)..... | 305              | General.   | 9.5                 |
| Basel (1874).....    | 200              | Bath.      | 10.5                |
| Glasgow (1874).....  | 343              | General.   | 7                   |
| Homerton (1874)..... | 372              | General.   | 9.6                 |

Before determining the value of a method of treatment from statistics derived from hospital practise it is necessary to ascertain the death-rate outside of that hospital and if possible for the entire city or surrounding country.

In this connection it is interesting to note that in Dr. J. C. Wilson's cases, recorded with great detail to the number of 108 as occurring in the German hospital from June 1, 1893, to October 1, 1894, and submitted to the most rigid type of bath treatment, the mortality reached 11.1 per cent., and that for the same two years 1893-94 the mortality in the whole city of Philadelphia, including every type of case and every plan of treatment, or none at all, was only 16.8; or in other words, the mortality of the bath treatment was only 5.7 per cent. less than that of the whole town. Again, in the series of cases which he has had since that time (October 1, 1894, to January 1, 1896), namely 117, he had nineteen deaths or a mor-

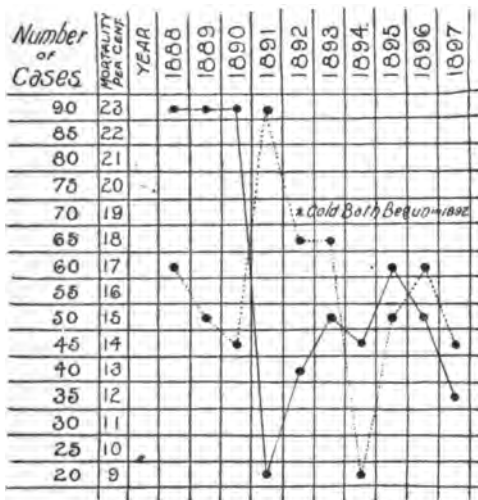
tality of 16.25 per cent., whereas for the whole city of Philadelphia the mortality was only about 15.3 per cent. Allowing for the fact that Dr. Wilson excluded from his cases patients who were admitted moribund, and that all of them were under the most approved and complete nursing and in the hands of competent resident physicians and a physician-in-chief of wide experience, it does not seem to us that the bath treatment has really given in this instance a very great degree of life-saving; and it must be recalled that while the percentage of deaths named by Dr. Wilson was a percentage derived from all (with the exceptions noted) cases in the wards, the percentage of mortality for the city was really far less than it would seem, for many physicians neglect to report cases unless they grow so ill that it is done at once before the death certificate has to be signed.

Considering the fact that patients are supposed to be greatly benefited by this treatment, if treated before the fifth day, it is a curious fact that out of fourteen of Dr. Wilson's cases (in 108) which received the bath by the fifth day no less than four died, and another case died which is stated as admitted early in the disease. It is also an interesting fact that while the general mortality of Philadelphia was decreasing progressively in 1890, 1891, 1892, 1893 and 1894 from 20.3 to 15.7 per cent., that Dr. Wilson's statistics should have an increasing mortality from 1.8 in 1890 to 11.1 per cent. in 1894, and 16.25 in 1894 to 1896. Owing to imperfect health reports we cannot discover the percentage of typhoid mortality in Baltimore to compare with Osler's cases.

The same difficulty exists in New York in regard to Gilman Thompson's and the city statistics. At the Philadelphia Hospital for the ten years from 1888 to 1897 inclusive the number of cases of typhoid fever and the mortality per cent. is shown in the following chart (No. 5). The practise of tubing was not instituted till 1892. How rigidly it has been enforced we have not been able to determine, but it is evident that the mortality has not been materially influenced by this means. Thus 1888, 1889, and 1890 had a mortality without the bath identical with that after the bath was used in 1895, 1896 and 1897; and 1888, 1889 and 1890 had a mortality lower than 1892 and 1893 when the bath was used. We think therefore that it may be considered proved that a large credit should be given to other causes than the Brand bath, and this holds true not only for this country but

abroad, for most of Brand's statistics are derived from German military hospitals in times of peace, when everything tends to a mild course of the disease. The military sanitation, the close watch over each individual, the fact that a livelihood is not lost if the patient goes to bed early, all tend to render the disease mild and to cause cases to come under treatment early. Further, the patients are in the great majority of cases very young, just passing out of their teens. It is evident, therefore, that the cold bath in itself is not as useful as would appear at first sight.

CHART NO. 5.—SHOWING MORBIDITY AND MORTALITY PER CENT. AT THE PHILADELPHIA HOSPITAL FOR TEN YEARS, 1888 TO 1897 INCLUSIVE.



Solid line, morbidity; dotted line, mortality per cent.

There are certain objections to the cold bath in the sense of tubbing which must be met. The first of these is that by its use an unnecessary expenditure of the patient's strength ensues. No one can see for the first time a typhoid fever patient bathed without a feeling of mingled pity for the case and mistrust for the method. To use Osler's clever words: "When I hear a poor fellow (who has been dumped, like Falstaff, 'hissing hot' into a cool tub) chattering out maledictions upon nurses and doctors, I am inclined to resent it, and to pray for a method which may be, while equally life-saving, to put it mildly, less disagreeable." So much for sentiment and perhaps judgment. Let us see if there are other rational objections.

To remove a patient too feeble to raise his hand to his head into a tub of water some 35° F. colder than his body, which is accustomed to the heat of his bed, seems heroic, and the lifting and necessary handling must produce some loss of needed strength. Again,

the shock of sudden and complete immersion may or may not be harmful according to opinion, but the nervous awakening if really a good thing can hardly be looked upon without the thought that the nervous energy expended is unnecessarily great, and one wonders whether the same results for good could not be obtained by gentler measures. That they cannot remains to be proved. When it comes to permitting a patient to rise from his bed and step into the tub, then we believe the enthusiasm of the bath advocate oversteps the limits of good sense. Nothing can possibly be gained by this expenditure of strength and its strain on a heart taxed by fever, exhaustion, and toxemia. Even if strong enough at the time the patient should save such energy for some future crisis or to aid in his convalescence. If walking typhoid has a high mortality it is due to this lack of conservation of energy. It seems to us as unwise for a patient to arise and step into a tub with a possibly ulcerated artery in a Peyer's patch as for a case of aneurism to make any effort. The shock and altered circulation is sufficient strain on the blood-vessel without the additional strain of change of posture and of effort.

Thus Liebermeister says, although an ardent bath advocate: "It is possible that the determination of blood to the internal organs, caused by the abstraction of heat, may increase the tendency to hemorrhage; and at all events, the moving of the body, be it active or passive, connected with the taking of a bath, is injurious. The same thing, of course, holds true, to a still greater degree, in perforation of the bowels."

**Hemorrhages.**—The frequency with which hemorrhages occur varies greatly in different epidemics independent of any specific line of treatment over and above rest in bed. Lack of such rest certainly predisposes the patient to this accident. In 861 cases of this disease without the cold bath in Liebermeister's clinic at Basel, hemorrhages occurred seventy-two times, or in 8.4 per cent. Griesinger met with thirty-two cases in 600, or in 5.3 per cent.; and Louis found them in 5.9 per cent., excluding mild cases. The younger Wunderlich has recorded ninety-eight cases of typhoid fever without the bath with hemorrhage in two cases, or about two per cent. We find therefore that in 1559 cases treated without the cold bath there were ninety-nine hemorrhagic cases, or 5.2 per cent.

On the other hand we find that in bathed

patients Wunderlich, Jr., records 155 cases with sixteen hemorrhagic patients, or 10.3 per cent.; Immermann at Basel records 146 cases with six hemorrhages, or 4.1 per cent.; and Liebermeister 882 cases with fifty-five hemorrhages—1183 cases, or 6.8 per cent.

This is shown best by the following table:

## WITHOUT BATH.

|                     | Cases. | Hemor-<br>rhages. | Per<br>cent. |
|---------------------|--------|-------------------|--------------|
| Liebermeister.....  | 861    | 72                | 8.4          |
| Griesinger.....     | 600    | 32                | 5.3          |
| Wunderlich, Jr..... | 98     | 2                 | 2            |
| Totals.....         | 1559   | 106               | 5.2          |

## WITH BATH.

|                     | Cases. | Hemor-<br>rhages. | Per<br>cent. |
|---------------------|--------|-------------------|--------------|
| Liebermeister.....  | 882    | 55                | 6.2          |
| Immermann.....      | 146    | 6                 | 4.1          |
| Wunderlich, Jr..... | 155    | 16                | 10.3         |
| Totals.....         | 1183   | 77                | 6.8          |

To these may be added: In America, with baths, Wilson's 140 cases with ten hemorrhages, or seven per cent.; Osler's 356 cases with twelve hemorrhages, or 3.4 per cent.\*

It is interesting to note in this connection that Fitz places the general frequency at five per cent. and Loomis at five per cent. It is, however, only fair to state that Goltdammer from nearly 20,000 cases concludes that the bath does not increase hemorrhages. Brand claims they are less frequent, as do also Tripiet and Bouveret; but Roland G. Curtin tells us that upon investigation he found that since the cold water treatment has been instituted the number of hemorrhagic cases has considerably increased, according to the hospital records that furnish the data, and in addition the mortality of the hemorrhagic cases is largely increased, viz., from five in seventeen, less than one-half, to twenty-five in forty-three cases, or over one-half; and further, on inquiry he found that in two of his tabulated cases the hemorrhage seemingly took place while the patient was in a bath, and in one case immediately after a bath.

An important point in this connection is the question as to the real danger from hemorrhage to the patient. In this opinions greatly differ. Thus Fitz tells us that it is always a serious symptom, but rarely fatal in private life; but that it may be very disas-

trous is shown by the fact that Liebermeister mentions forty-nine deaths due to this cause out of 127 deaths, Murchison fifty-three deaths from hemorrhage out of 100 deaths, and Homolle forty-four per cent. in 498 deaths. Osler asserts that death occurs in from thirty-five to fifty per cent. of hemorrhagic cases. Out of Griesinger's thirty-two cases of hemorrhage ten died, seven of these within four days of the hemorrhage. Liebermeister tells us that among his own cases 38.6 per cent. died when they had hemorrhage as against eleven per cent. without this accident; and Tyson tells us that the seven per cent. mortality in his cases under the bath treatment was due entirely to hemorrhage or perforation. It is evident that Osler's percentage is about correct.

*Relapses.*—It is admitted by advocates of Brand's method that relapses are more common under its use than without it. Osler met with fourteen cases of relapse in 160 cases bathed, or 8.7 per cent., but mentions five other cases of doubtful relapse, which raises the percentage; while Shattuck met with 21 in 129 cases, or 16 per cent., and eleven occurred before primary fever ceased. Wilson tells us that it occurred in 11.3 per cent. of his cases, and Osler tells us 8.7 per cent.; Shattuck 16 per cent., Immermann 15 to 18 per cent., Baumler 11 per cent., and Jaccoud 9 per cent., varying from 1 to 15 per cent. As against this we may place the frequency as given under no bath treatment. Thus Murchison gives it at 3 per cent., Gerhardt in 4000 cases 6.3 per cent.; Griesinger puts it at 6 per cent., and Strümpel at 4 to 16 per cent.\*

At the Presbyterian Hospital in New York Gilman Thompson found the relapses in 193 cases to be 13.5 per cent., which is 2 per cent. higher than in 284 cases treated by all methods during the same time.

Liebermeister says: "In Basel, before the introduction of this treatment, 861 typhoid fever patients gave us sixty-four relapses, or 7.4 per cent., two of which were fatal; after the introduction of this treatment, 882 typhoid fever patients gave eighty-six relapses, or 9.8 per cent., ten of which proved fatal. *It appears, therefore, that the proportion of relapses and the number of deaths are both actually increased under the use of cold water.*" And discussing the probable bearing of these results he adds: "At present the probability

\*Only 299 were bathed.

\*It is not possible for us to discover if all the cases of Gerhardt and Griesinger were treated without the bath.

certainly seems to be in favor of the affirmative of the question, the more so as it appears that the frequency of relapses is greater in proportion as the antipyretic treatment has been the more systematically employed." Biermer has also found relapses more frequent since the introduction of cold baths.

On the other hand Murchison with his extraordinary opportunities places the percentage at three per cent.\*

Having determined the fact that relapses are more common under the cold bath, we must determine what are the dangers of a relapse. As a rule we believe relapses are milder than the primary attack, provided the primary attack has been severe.† On the other hand, if it has been rudimentary or in the class called by some writers "typhus levissimus," then the relapse is more severe. In any event the relapses are characterized by a greater suddenness of onset and usually a shorter course. That the relapse is an element of danger seems self-evident, since it comes on in a patient already exhausted by disease. Therefore the prognosis is grave according to the severity of the relapse and the state of the patient. It is interesting to note that in Liebermeister's cases out of 111 cases of simple relapse the fever was longer in duration than in the first attack in thirty-seven, shorter in sixty-eight, and of the same length in two. In twenty-nine of the cases the primary attack was mild and in eighty-two severe, but the relapses were mild in forty-seven and severe in sixty-four, and seven of these died in the relapse.

Other figures might be stated, but these seem sufficient to prove that relapses are dangerous to the patient and to be avoided if possible. This is still further emphasized by the fact that at Basel out of 115 relapses hemorrhage from the bowel occurred four times, perforation twice, thrombosis once, pulmonary consolidation nine times, nose-bleed seven times, bed-sores four times, abscesses five times, and petechiæ three times.

To quote Liebermeister again: "If we take the reports of the years 1869, 1870, and 1872, at Basel, we find, among 467 typhoid fever patients systematically treated with cold baths, thirty-three deaths and fifty-five relapses, six of which were fatal; the frequency

of relapses, therefore, counting only those patients who had survived the first attack, was in the proportion of 12.5 per cent., as against nine per cent. before baths were used. The higher rate of mortality among the relapses is of so much the greater import, in view of the fact that the relapses, too, were treated antipyretically, which ought rather to have given us a lower death-rate."

*Perforation.*—An interesting question is the effect of baths on intestinal perforation. What the ordinary percentage of this accident is is in some doubt, but according to Murchison it is in the neighborhood of three per cent., and this is about the percentage reached by Osler in cases bathed and not bathed.

The most interesting comparative statement as to the frequency of perforations with and without the bath is that made by Mason. Thus at Boston City Hospital the percentage of perforations in males was 1.4 and in females 1.3, while under the cold bath in Brisbane it was 3.6 per cent. in males and 1.6 per cent. in females—Liebermeister's statistics, viz., that there were twelve cases of this accident in 973 patients before the bath and fourteen in 1108 after it was introduced, show a very slight difference.

The mortality of this accident is very high. Of 1721 autopsies the percentage was 11.3, according to Murchison. According to Osler it was found in 2000 Munich cases 114 times (5.7 per cent.), and in twenty out of eighty of his deaths.

*Duration of Disease*—The influence of the bath treatment on the duration of the disease seems to be to prolong it. It is necessary to determine the ordinary duration with and without baths. Very important classifications of cases are those made by Liebermeister and Jurgensen. The first of these clinicians speaks of the mildest cases as those in which the rectal temperature never or rarely rises above 103°, and the duration of fever does not exceed eight days. Such cases require only dietetic treatment and cannot be used to show the value of different modes of treatment. The mild cases do not have a rectal temperature above 104.8°, and the fever lasts sixteen days. The severe cases are those in which the rectal temperature rises above 105° and the fever ceases by the twenty-first day. Jurgensen considers all cases mild which have no fever after the tenth day, and those severe that have fever after this date.

Murchison states the mean duration in seventy-five cases to be a fraction more than

\* It is interesting to note in this connection that in Wilson's cases out of twenty-five cases in which the bath was commenced within the first week there were no less than four relapses.

† Flint is the only author of note who thinks that the relapses are more severe than the first attack.



twenty-four days. Flint states from going to bed to normal temperature sixteen days, with a maximum of twenty-eight days and a minimum of five days. Longest case seen by Flint was fifty-eight days.

Of forty-five of Flint's fatal cases the duration was a fraction more than fourteen days. Murchison tells us that the mean stay in hospital of 500 cases which recovered was 31.24 days, of 100 fatal cases 16.52, while the average duration of illness before admission of the 600 cases was 10.78 days. Again, Murchison tells that the pyrexia as a rule lasts at least three weeks, and the ordinary duration of enteric fever is from three to four weeks. Of 200 cases which recovered, and in which he was able to fix the commencement with tolerable certainty, the duration was: ten to fourteen days in seven cases; fifteen to twenty-one days in forty-nine cases; twenty-two to twenty-eight days in 111 cases; twenty-nine to thirty-five days in thirty-three cases.

The mean duration of the 200 cases was 24.3 days, and the mean duration of 112 other cases, which were fatal, was 27.67 days.

The average duration of residence in St. Thomas' Hospital, London, in 1894, 1895 and 1896 was from 43.1 to 51.8 days, and the average duration of fever from 14.3 to 16.73 days, although a great proportion of the patients were admitted in the first or second week.

If we take the twenty-five cases admitted in the first week of the disease given in Wilson's table, we find that the average stay of these patients in the house was forty-one days (40.4), and the average day of normal temperature the nineteenth. The average maximum temperature was 104.6° (40.3). If the entire 108 given in his last table in his article are studied we find that the average duration of the fever was in the cases admitted in the second week 23.2 days, in the third week 27.3 days, and the average stay in the house of the second week cases 40.8 and of the third week cases 38.8 days. These figures would seem to contradict Wilson's statement that his patients as a rule return to their homes in two weeks from defervescence.

Gilman Thompson states emphatically that the cold bath does not ordinarily shorten the duration of the disease.

To summarize the points so far covered, we find that the mortality for typhoid fever to-day all over the world, except in the presence of individual epidemics of malignant infection, is not over fifteen per cent., and if

the cases receive good nursing and non-meddlesome treatment, about ten per cent. or less.

That in American hospitals under the best men in the profession the mortality of typhoid fever is about 7.5 to 8 per cent., and sometimes ten or even eighteen per cent.; therefore the saving of life by the bath is not the difference between twenty-five per cent. and seven per cent., but between ten per cent. and seven per cent. at the very best.

That this method does not shorten the attack but probably prolongs it.

That relapses are much more frequent under it.

That hemorrhages are more frequent, when in reality the modification of all the symptoms by the bath would lead us to expect a decrease in their number.

That the frequency of perforation is not decreased.

If the general mortality of fifteen per cent., as we have shown exists, is reduced to ten per cent. by good nursing and treatment, and the mortality under the bath amounts to about 7.5 per cent. at the very best, as it does in the hands of all American observers, it is evident that the cold bath is responsible for a saving at the most of but 2.5 per cent.; and it is also evident that this 2.5 per cent. is saved by the favorable effect of the bath on the nervous system, circulation, respiration, and the toxemia, for the other cases of death remain unaltered in frequency or are increased.

With the manner in which these good effects are produced we shall deal a little further on. It yet remains for us to determine what are the defects of this method, then to consider how it does good, and finally whether any better plan or modification can be adduced.

In the first place it would seem an opportune time to protest against the almost universal application of the bath to this disease. It is, or ought to be, a fundamental law of therapeutics that there is no such thing as treatment by hard and fast rules of routine. The recommendation that all cases of typhoid fever with a temperature of 102° to 102.5° F. shall be placed in a tub of water at 65° to 70° F. is an affront to this rational law. Until all human beings are exactly alike in every attribute and characteristic and all micro-organisms are possessed of equal virulency, power of multiplication, and growth, every case of infectious disease seen by the physician will require careful study if the best re-

sults are to be obtained. He must modify his treatment to fit his case. It may be that some general trend of method is suited to all cases just as a coat is needed by all inhabitants of cold countries, but each individual needs a modification of the coat to fit his figure and necessities. Digitalis is useful in twenty-drop doses in many cases of valvular heart disease, it is useful in other cases in smaller doses, and in some not at all useful; and even a specific remedy, like quinine for malaria and mercury for syphilis, is subject to grave modifications in every case we meet if the best results are to be obtained.

It must be evident that as the temperature is far more easily reduced in one patient than in another, the temperature of the bath should be modified to the case as well as the duration of the bath. Every one knows how in one patient with a temperature of  $104^{\circ}$  the temperature is easily lowered, while in another, because of the severity of the disease, an excess of fat, or other causes, the reduction can only be caused by great effort.

When we consider all the points in the cold bath treatment it is almost impossible to avoid the thought that it is a measure to which in a few years we will look back with the same distress that we regard excessive venesection and other excesses. We are now told to plunge practically every case of typhoid fever into a bath at  $70^{\circ}$ ; to keep the man, shivering, chattering and blue, in the water for some twenty minutes, then to lift him out on a bed, place a hot bottle to his feet, and perhaps elsewhere, and give him a drink of whiskey to overcome his feebleness, and chills. Truly he is cast from the heights of pyrexia to the degradation of collapse, and then with a swift turn stimulated to renewed febrile efforts. That the mortality is decreased by this method may be partly true, but to use a simile, are we not using croton oil to move the bowels in all cases when cascara will do equally well in a number, and the croton oil is required only in a few?

These facts have been recognized by so many eminent men of very large experience that it would seem unnecessary to quote them were it not that followers of the cold bath plan have recommended its use in every case of the disease which comes to their hands. Thus we find one of the leaders in his enthusiasm for this method of treating this disease telling his readers that he has used it continuously for seven years, that it has been the "only treatment" in his wards, and that all patients suffering from this disease have

been submitted to it except very rare cases in which the axillary temperature has not reached  $101.5^{\circ}$ , those brought in in a dying state, and those admitted after the third week. He also stops the bath in the presence of hemorrhage and perforation. And again we are told that the patient receives a full bath at  $65^{\circ}$  to  $70^{\circ}$  every five hours when the rectal temperature reaches  $102.2^{\circ}$  or over. Other clinicians do likewise. On the other hand we find no less an authority than Strümpel making the following statements:

"In so far as the height of the fever furnishes an indication for baths, we may accept, say,  $103.6^{\circ}$  F. ( $39.8^{\circ}$  C) in the rectum as the temperature calling for a bath. At night we have given baths very seldom, except when forced to by extremely high temperatures or other bad symptoms. It must be a mistake to wake a patient who is quietly sleeping, and put him into cold water, even if his temperature is above  $104^{\circ}$  F. ( $40^{\circ}$  C.). Likewise, in cases where the temperature shows considerable spontaneous remissions, there may be no use in inflicting a cold bath upon a patient who has high fever only temporarily.

"It is not always advisable to use baths, however advantageous this treatment may be, in typhoid fever. There are a number of contraindications which cannot be disregarded, as great weakness or great sensitiveness, such that the excitement caused by the bath might do harm. Sometimes baths are followed by severe rheumatic ('rheumatoid') pains in the limbs, and often they seem to promote the occurrence of furunculosis. In such cases it is often necessary to omit the baths, or at any rate to employ them less often and at a warmer temperature. The same is true if a severe laryngeal affection develops, or otitis or nephritis. Nothing seems to us a greater mistake than to attempt to establish a scheme for the treatment of typhoid fever by baths that shall be always applicable. Here, if anywhere, the only correct way is to treat each individual case according to its special symptoms and circumstances."

Brand himself modifies the bath and states that he always uses warmer baths for twenty-four hours if the patient has been ill as long as four days, and his enthusiastic follower Baruch tells us that like all agents that are powerful for good this method may produce irreparable damage (Baruch, p. 42). The depressing effect of the bath has been noticed by Liebermeister, who considers a high degree of cardiac weakness an impor-

tant contraindication. He also points out that some patients cannot bear a sufficient repetition of them, and that other contraindications may exist to their use.

Osler also tells us that the baths have often been changed to cold sponges on account of profound weakness, tenderness and swelling of abdomen, signs of perforation, and because of the active protestation of the patient. Out of 356 cases only 299 were bathed, showing that in Osler's view a fairly large proportion of cases are not suited to the bath.

Finally, the patient must be strong enough to react and rally from the bath. As we shall show, all the good effects come from reaction, and Baruch points out that the bath which is of benefit in the first week may in the third prove a fatal depressant (p. 62), and a very feeble patient in the first or second week is quite apt to fail to react.

Loomis has well said: "There is no remedial agent which requires greater care and judgment in its use than the cold bath, yet doubtless, when judiciously employed, the lives of many typhoid patients may be saved, and it is equally certain that when injudiciously employed many lives may be destroyed. The general condition of the patient and the stage of the fever must be considered; also the effects of the first few baths must be carefully noted. Should a patient's temperature range at 104° or 105° F., it is no positive indication for the resort to a cold bath, or that a cold bath is the best agent to be employed for its reduction. If the patient after the second or third bath is more quiet, has less delirium (if delirium previously existed), if his breathing becomes easy and natural, if the heart's action is more regular and forcible, and he falls asleep and perspires, there can be no question in regard to the beneficial effects of the bath. If, on the other hand, the bath is followed by feebler heart's action, by dusky cheeks, by rapid respiration, and by coldness of the extremities, from which condition the patient rallies slowly and imperfectly, it is certain that, however high the temperature may range, harm will be done by continuing the baths. When the extremities are cold, or there is profuse hemorrhage from the bowels, or when from any cause there is great feebleness of the heart's action, and especially in the case of aged persons, cold baths are contraindicated."

A large number of other authorities might be named, but we may quote Nothnagel, who asserts that when there is cardiac feebleness

along with fever, and especially when profuse diarrhea is present, cold baths should not be used.

These quotations and the reasons given show that it is unwise and unnecessary to bathe in a tub every case of typhoid fever. This treatment has its limitations just as all others have theirs.

It is said by the bath advocates that if mild cases are not bathed they may become grave afterwards, but if this is a valid excuse then we should bathe patients with a practically normal temperature or one below that in which the bath is recommended. Personally we cannot believe in this view. On the other hand, we believe that in cases with little fever the good nursing, massage, proper feeding, sponging and care will be adequate.

We come then to a consideration of the questions, How is the good accomplished? and second, Cannot some modification of the present plan be adopted capable of attaining the same ends without the suffering of the patient and the immense labor involved, and without some of the very serious drawbacks now found associated with it?

It seems to be universally conceded that in moderately severe cases of typhoid fever the reduction of the temperature is a comparatively unimportant effect of the bath, and in the cases of marked and severe febrile movement it is of great advantage over and above the apyretic influence. In other words, it is confessed that the cold bath in typhoid fever possesses an influence of great importance upon the general system far in excess of its antipyretic effects.

It is true that Liebermeister many years ago expressed a belief that the cold bath did good solely by lowering temperature, but at that time the effects of the bath on leucocytosis, oxidation and the true influence of massage were not known, and his belief that the nervous symptoms are chiefly the result of the fever is no longer tenable and is strongly combated by Strümpel and others. To use the words of Dr. Simon Baruch, the idea that high temperature is the chief determining cause of fatality in typhoid fever must be abandoned (Baruch, p. 110).<sup>\*</sup> Further than this, the cold bath does not materially modify the whole body temperature, for as Baruch (p. 59) states in italics, "the fact is that the colder the bath the less intense its power of reducing internal temperature."

<sup>\*</sup>Baruch also says whoever expects to throttle the fever by the bath will be disappointed.

He has often seen the mouth temperature after a bath of 65° in typhoid fever reduced to normal while the rectal temperature was two degrees above normal. This is also stated by Liebermeister (*Handbuch der Path. und Therapie des Fiebers*, p. 102).

To any one who has studied the general subject of hydrotherapy it is evident that the cold bath exercises the same effect upon the blood-vessels that constant exercise of function always produces, namely, an increase in normal tone and ability to perform normal work. The blood-vessels are in one respect like rubber tubes, namely, they remain elastic as long as they are frequently exercised and become brittle as soon as they lie idle. The cold bath therefore improves vascular tone, and the result of this is a decreased tendency to stasis of blood and lymph in the tissues. Further than this, the peripheral blood-vessels being first contracted by cold are emptied as the central ones are filled, and then as the reaction takes place the flow is reversed, as it were, and the peripheral vessels are flushed by an excess of blood which cools the body by bringing hot blood to the surface and brings to the emunctory portions of the skin effete material for elimination. Finally, when the first shock and rebound of a bath is past the circulation settles back to a normal equilibrium, with the result that anemic areas have been supplied with blood, congested areas relieved, toxic matter removed from contact with vital cells and carried to the eliminative organs; with the improved circulatory state these are active in their eliminative function. Further than this, by this means perfect oxidation of tissue takes place and probably oxidation of the toxins of the disease ensue. Liebermeister, Röhrig and Zuntz have shown that the use of cold externally increases oxidation in the body so that a large amount of oxygen is taken up and more CO<sub>2</sub> is eliminated.

So far then we have a lowered temperature, an improved circulation, an elimination of toxic matters, and an improved nervous tone by removal of the fever and the poison. There is still another function performed by the cold bath, namely, an increased leucocytosis, as shown by the studies of Winternitz. This investigator has shown that the bath, and indeed all cold applications to the entire surface, greatly increases the number of leucocytes and the percentage of hemoglobin; and Thayer of Baltimore has confirmed these observations, finding in typhoid fever in particular that the number of leucocytes is in-

creased from two to nearly fourfold by this means. It would seem probable from Thayer's studies that this increase is an actual one and not solely due to a dispersing of the leucocytes from certain areas out into the general circulation. So, too, Jacquet of Basel found that the red blood cells in the general circulation may be raised about 500,000 in febrile cases by the cold bath. Thermes has reached like results.

Again, no bath in typhoid is properly given if active rubbing of the body is not resorted to while the patient is in the bath. This massage aids the effect of the cold shock most efficiently, possesses all the benefits of ordinary massage, and also greatly increases leucocytosis or leucocytic activity.

There is not space for any details in further support of these assertions; those familiar with the minute and general effect of massage know them well. J. K. Mitchell has shown that massage increases the number of the red cells and adds to their hemoglobin value both in health and in anemia.

Having indicated some of the chief methods by which the cold bath does good, we come to the second proposition, namely, Cannot some equally effective method be carried out, less harassing and exhausting to the patient and devoid of the manifest disadvantages of the bath? We admit that it is not possible for us to present an array of statistics in support of the following suggestions, because it takes a long period of time to collect an array equal to those of the cold bath and a hospital service unusually rich in typhoid cases. One of us (Dr. Hare) has used cold sponging in a more or less active form for the past ten years in his hospital wards whenever it was needed, and has rarely if ever used the bath. His results in St. Agnes and the Jefferson Hospitals suggest that the following rules be laid down for the treatment of typhoid fever cases:

1. When admitted early in the disease, with constipation or moderate diarrhea, the physician should give a full dose of calomel in divided doses in order to stimulate the liver and antisepticize the bowel with bile.

2. Control the fever when it reaches 102° F. by sponging. The patient being stripped and laid on a rubber sheet or blanket over such a sheet, he is to be sponged with water adapted in its temperature to his needs, and it is to be remembered the rapid application of a low temperature is more refreshing than the prolonged application of a higher temperature (Baruch). The chief advantage of

cold sponge lies in the shock and reaction. This is better obtained by the use of ice sponging than by the bath. The patient's surface is always bright red in ice sponging, often blue in the bath, and that the fever is not the chief danger in the case renders the fact that as great a reduction from the sponge is not reached as from the bath of little importance except in hyperpyrexia.

Shattuck tells us that he has found no marked or constant difference in the antipyretic value of cold sponging at 60° for 20 minutes, the cold pack at 60° for 20 minutes, or the cold bath at 70° for 10 to 15 minutes.

Finally, if this does not bring the temperature down to 100.5° or 101° in twenty minutes resort should be had to the tub.

It is essential when the sponging is used that more of it be applied to the back than the front of the body, for at the back the great muscles and thick skin retain the heat as a reservoir, which is not cooled if only the front of the body is sponged. Further, the posterior surfaces are the ones apt to be congested and sore from the dorsal decubitus and therefore need the stimulant effect of the bath, as do the kidneys and other deeply situated organs. That this treatment is of value is shown by the marked redness of the skin, the improvement of the circulation and respiration, and the cleared mind. That it increases leucocytosis is proved by the following studies made in my wards by Dr. Holder, my colaborer in this paper:\*

3. It is advisable not only to use friction in a light form, but to use moderately active massage with the same objects in view as when the rest cure is undertaken, for the proper treatment of typhoid is a modified rest cure. We are firmly convinced that by this means bed-sores, local congestions and effusions, edematous swellings, peripheral nerve pains and muscular feebleness will be largely decreased, and Pospischl has shown that mechanical irritation of the skin is capable of increasing heat loss ninety-five per cent.

4. In nearly all cases give more nourishment than the average typhoid patient has usually had in the past. Attention has recently been forcibly called to this necessity by Shattuck and by one of us in the editorial pages of the THERAPEUTIC GAZETTE. With the exception of broths (which are culture media for the bacillus of typhoid) and meats, almost any article easy of digestion should be allowed, as one or two or more lightly boiled eggs, corn-starch, arrowroot, etc.

5. Use stimulants in carefully graduated doses whenever the circulation needs them, particularly alcohol. Even the cold bath enthusiasts give whiskey to overcome the depression they often produce. Beyond these directions each case should be treated for the symptoms which arise from time to time. Let the physician be a watchman constantly and a therapist or hydrotherapist only as necessity arises.

#### BLOOD COUNTS IN ENTERIC FEVER.†

| Case       | Hemoglobin.  | Before sponging. |                    | After sponging.  |                    | Hemoglobin.  |
|------------|--------------|------------------|--------------------|------------------|--------------------|--------------|
|            |              | Red blood cells. | White blood cells. | Red blood cells. | White blood cells. |              |
| No. 1..... | 60 per cent. | 4,800,000        | 7,000              | 5,200,000        | 14,600             | 70 per cent. |
| No. 2..... | 62 per cent. | 4,600,000        | 9,000              | 4,600,000        | 11,000             | 80 per cent. |
| No. 3..... | 80 per cent. | 5,200,000        | 11,000             | 5,400,000        | 63,000             | 87 per cent. |
| No. 4..... | 65 per cent. | 4,500,000        | 7,300              | 4,800,000        | 23,000             | 64 per cent. |
| No. 5..... | 55 per cent. | 4,200,000        | 6,000              | 4,700,000        | 6,000              | 58 per cent. |

† Technique: Thoma-Zeiss apparatus with Tolisson's solution. For red blood cells from 32 to 96 squares were counted. For white cells one platform with a "cut-off," making in all 1200 squares to each count. Hemoglobin estimated by von Fleischl's hemometer. This is from three (3) separate counts at various times.

A differential count with Ehrlich's triple stain showed slight changes, such as Thayer found, in the varieties of white cells. These changes are not constant nor are they great enough to be of much value.

\* As an illustration of the fact that we have no statistics giving a fair report of the effect of the moderate and proper use of cold in fever aside from the cold bath, we may cite an instance named by a recent writer. A male of eighteen received baths during the second week of an attack of typhoid fever, and was so seriously depressed by them that a so-called "cold pack" was used. This "cold pack" consisted, we are told, in wrapping a patient in a cold wet sheet and then wrapping him in a blanket for an hour. If there be any fever present such a pack in a very few moments becomes not a means of materially reducing fever, but a hot Russian bath, and one of us

knows of a case in this city in which a hyperpyretic patient was so treated and speedily died. The case quoted from another writer is cited by him as one which shows the comparative effects of cold bathing and cold packs, although the former were used in the second week and the latter in the third, and although the cold pack as described is not an antipyretic measure of any moment. This is not a comparison between cold bathing and cold sponging, yet one reading his text would get the impression that all other methods of reducing temperature than plunging in typhoid fever were inefficient.

Finally, let us state that the object of this paper is not that of the iconoclast, nor that of one desirous of urging upon the profession any definite routine plan of treatment. It is an endeavor to determine the exact value of a well tried plan, to point out the fact that a rigid routine is inadvisable, and to suggest that the cold bath itself is perhaps equivalent to using an engine when in some cases at least hand power will equally well spin out the thread of life.

*INTRAVENOUS INJECTIONS: WITH THE REPORT OF FIVE CASES IN WHICH THE SALINE SOLUTION WAS SUCCESSFULLY USED IN COMBATING SHOCK AND HEMORRHAGE.\**

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Having been asked by the President of this Society to read a paper, I have selected a subject which is at present receiving the attention of the medical profession. Owing to the critical nature of the cases which call for intravenous injection of saline solution and the suddenness with which the call is liable to come, the general practitioner as well as the surgeon should familiarize himself with its usefulness and the technique of its administration.

The introduction of fluids into the vascular system of an individual is by no means a new procedure. It is an exceedingly old operation and was performed in ancient times. Ovid, in his *Metamorphoses*, speaks of blood being taken from young healthy men and mixed with vegetable juices, then injected into the veins of old men who longed to renew their youth.

In 1665 (Reference Handbook of the Medical Sciences, vol. vii, p. 214) Lower, of Oxford, performed the operation of transfusion with success. He bled animals to a condition of syncope and resuscitated them by injections of blood from other animals. Denis, of Paris, followed Lower in these experiments. He transfused a patient who had been bled and purged for fever. Ten ounces of lamb's blood was injected and the patient recovered. Subsequently he was called to an insane patient who had been bled and purged without changing the mental condition. He injected nine ounces of calf's

blood, and recovery from the mental disturbance was the result. Three months later the mental trouble returned, and Denis attempted to operate again, but on opening the vein in the patient's arm found that no blood flowed. He did not finish the operation and his patient died. The wife charged the physician with killing her husband, and the latter retaliated by saying that she had administered poison to him. The case created considerable excitement in Paris, the operation fell into discredit, and a law was finally passed forbidding its performance.

In 1665 two German surgeons, named Kaufmann and Purmann, claimed to have cured a leper by the repeated injections of lamb's blood. During many years blood from animals was occasionally injected into the vascular system of the human patient to meet certain demands, but this maneuver was looked upon with disfavor, as many believed that the blood of calves and other animals contained particles of various kinds necessary for the development of such peculiar tissues as horns, etc., belonging to these animals, and that consequently these elements would prove deleterious when in the vascular system of the human patient.

There seems, according to the old writers, to have been considerable diversity of opinion as to what becomes of the blood-corpuscles when taken from an animal of a different kind. Marfels and Moleschott (quoted by Hamilton, *Text-book of Pathology*, vol. i, p. 474) recognized the blood-corpuscles of the sheep in the circulation of the dog months after they had been transfused. It is said that between animals closely related blood can be interchanged with impunity; for instance, the blood of the calf for that of the lamb, and horse's blood for that of the ass, but in case of man it has been found that it is safe to transfuse only from one individual to another.

At the present day there is scarcely any difference of opinion with regard to the use of blood from the lower animals; it is regarded as dangerous, and it is seldom or never employed. The transfusion of milk had at one time many advocates. Dr. Joseph W. Howe, of Brooklyn (Reference Handbook of the Medical Sciences, vol. viii, p. 221), in speaking of his experiments upon dogs with the intravenous injection of milk, says that when he had bled seven dogs to a state of syncope, milk was injected and not a single recovery took place. Two dogs were bled in a similar manner, no milk was injected,

\* Read before the W. W. Keen Surgical Society, Jan. 8, 1898.

and recovery occurred in each case. The only conclusion that can be drawn from this is that the milk killed the dogs. Dr. Schafer, of New York (Jacobson's Surgery, 3d edition, p. 90), found that the injection of milk, after dogs had been reduced by bleeding to an almost lifeless condition, caused a temporary rise in the blood-pressure, but no permanent benefit. On post-mortem examination the blood-corpuscles were found to be disintegrated and the blood swarming with bacteria.

After it had become evident that the blood of animals would not functionate properly in man and that milk in the hands of many proved unsatisfactory, it became a universal practise to use human blood for transfusing purposes, and for years it was a question whether human blood should be introduced in its natural state, or be deprived of its fibrin before being introduced.

The old as well as the recent literature on the subject tells us that transfusion of pure blood is followed sometimes by capillary thrombosis. One great trouble with defibrinated blood is the uncertainty of its action; it is sometimes harmless, but at other times highly dangerous. It has been suggested that some saline solution having the power of delaying coagulation—*i.e.*, sodium phosphate—should be added to blood before it is introduced. Dr. W. Hunter (*British Medical Journal*, 1889, vol. ii, p. 305) condemns its use. He is of the opinion that the use of a three-fourths per cent. solution of sodium phosphate will cause red corpuscles to break up and disappear in twenty-four hours, and that the use of this salt with the blood will not prevent the occurrence of capillary thrombosis.

The great difficulty which is often experienced in obtaining human blood for transfusion, and its want of advantage over the ordinary saline solution in the majority of cases, to say nothing of its dangers, has led the operators of to-day to use the saline solution exclusively.

Before going into the question of the advantages of the normal saline solution over the previously recommended fluids for the intravenous injections, it will be well for us to look into the elements of the blood that are essential to life and how these elements are affected by introducing other substances into their midst. We know that vital activity of all kinds—respiratory, nervo-muscular, etc.—necessitates a constant and free supply of oxygen, and this want is filled by the circulating blood carrying the red corpuscles

laden with the indispensable element. We have been taught that the hemoglobin is that part of the blood which absorbs and gives up the greatest part of the oxygen, and that it is to their hemoglobin that the red corpuscles owe their function of being oxygen carriers. When we study the circulation and the respiration we see that the healthy corpuscles absorb oxygen during inspiration, and while these corpuscles are passing through the capillaries they give up the oxygen, which combines with carbon to form carbon dioxide or carbonic acid; this in turn is carried by the corpuscles to the lungs, where it is exhaled. Any condition which arrests the activity of the corpuscles will cause death by allowing the accumulation of carbonic acid. From the above it is a just inference that the corpuscles must not only be capable of functioning properly, but must be in circulation at all times and under all circumstances. Besides corpuscles and their hemoglobin, which we consider to be a source of power, the human blood contains water, fibrin, albumen, fats, and salts. As fibrin exists in such small quantities in the blood, some distinguished physiologists think it is a product of the activity of the tissues, and in normal circumstances is destroyed as rapidly as it is formed, being burnt up by the oxygen and converted into excrementitious material (Chapman). There must be something in this view, as blood, when it has been whipped and deprived of its fibrin, seems to accomplish as much as pure blood, when injected into the vascular system of another animal. Albumen, salts and fats are supposed to furnish materials for the tissue for repair, and while they are really essential to life and comfort in the long run, we can conceive of no immediate condition in which the vital forces are dependent upon them.

The above statements show the fallacy of using milk for transfusing purposes in cases where there has been a sudden loss of blood. Next to water, common salt is the most important of the proximate principles of the blood. It not only gives to the blood its alkalinity, but enters freely into the process of osmosis, promotes absorption, and aids in preventing dissolution of the corpuscles. Since water forms three-fourths of the blood, it must necessarily play an important part in keeping up the volume of the blood.

After severe operations in which there has been considerable blood lost, there is always a great fall in the blood-pressure, and death sometimes ensues on account of failure of

circulation due to the rapid fall in the pressure. In health the blood-pressure is dependent mainly upon peripheral resistance, and this in turn depends upon the action of the vasomotor nerves.

Whatever may be the cause of lowering or raising the blood-pressure, it is certain that the pressure is lowered in cases of severe hemorrhage, and is raised when fluid is injected to replace the lost blood. Indeed, the blood-pressure is influenced by the intravenous injection of fluids in patients who are not suffering from shock or loss of blood, as I will show presently.

Dr. Woolridge, of London (*Lancet*, 1891, vol. ii, p. 626), shortly before his death, had been making experiments on transfusion in animals, by means of which he was able to show that after an animal had sustained a loss of blood sufficient to terminate its life, there was left in the blood vascular system enough corpuscles to sustain life, if sufficient fluid be added to keep them in circulation. So strong was Dr. Woolridge's belief in the value of saline solution that he used to tell the students in his lectures on physiology, "No person should die of hemorrhage."

Reconsidering, it seems evident that the elements necessary to sustain life in a person previously healthy who has lost considerable blood are healthy corpuscles, which must be suspended in a fluid the character of which is harmless to the corpuscles and the pressure of which must be sufficient to carry these corpuscles from the lungs through the capillaries and back to the lungs. Since the question has resolved itself into one of corpuscles and fluid, and experiments have shown that after a severe hemorrhage a sufficient number of corpuscles remain in the blood vascular system to maintain life if only enough fluid be introduced to keep them in circulation, the question which remains is, What fluid would prove to be the best? We are inclined to believe that the nutritive value of blood, whether pure or defibrinated, for transfusing purposes is very small, that its real value depends upon its physical properties, and these are in no manner greater than an equal quantity of any fluid which will raise the intravenous pressure and not interfere with the activity of the corpuscles. Quantity and not quality seems to be the chief cry of the corpuscles after severe hemorrhage. In view of this fact the question may arise in the minds of some why ordinary water would not suffice. In an emergency the intravenous injection of ordinary water

has been followed by results as successful as any ever obtained after transfusion of blood (Coates, quoted by W. Hunter, *British Medical Journal*, vol. ii, p. 309). Now that it is known that ordinary water can be used for intravenous injection, we ask ourselves if this can in any way be modified. Next to water common salt is the most important of the proximate principles of the blood, absorption and osmosis being influenced by it. If it had no other action than that of assisting the corpuscles to absorb oxygen in a critical period, it would be justifiable to use it; but more than this, it is claimed that the existence of the corpuscles partly depends on the presence of sodium chloride, which absorbing any superfluous water prevents their dissolution. The experimental research on intravenous injection of various solutions (by MM. Bosc and Vedel, *Gazette des Hôpitaux*, 1896, p. 938) is interesting. The authors experimented with the following solutions: distilled water, ordinary water, simple saline (chloride of sodium) solutions, and the so-called artificial serum, sodium chloride and sulphate of sodium (equal parts of a strength of 7 in 1000). Their conclusions are as follows: Distilled water is noxious even in small doses and ought not to be injected alone in the veins. Ordinary water is, on the contrary, not toxic. Its destructive effects on the red corpuscles are less marked than those produced by distilled water, and in emergency it may be injected intravenously by itself. Simple sodium chloride solution is quite innocuous so long as the quantity of salt does not exceed three times the quantity of the sodium chloride contained normally in the blood. The physiological value of the artificial serum solution is not superior to that of the simple saline solution, and simple salt solution 7 per 1000 is the most convenient for intravenous injection.

Dr. William Hunter, in his admirable address on transfusion, delivered at the Royal College of Surgeons, London (*British Medical Journal*, vol. ii, 1889), said: "Any advantage that transfusion of red corpuscles may have over simple saline injections is counterbalanced by the dangers attending the simultaneous injection of the white corpuscles. In the case of defibrinated blood, the latter so preponderate that the transfusion of defibrinated blood is an operation not only dangerous in itself, but one whose practical value by no means serves to compensate for the additional risks run in carrying it out. Under no circumstances is transfusion of



milk or of other mixtures possessing what are supposed to be nutritive properties ever indicated. They possess no value not possessed by an equal bulk of saline solution." Dr. Hunter also said his experiments upon animals show that the recovery after intravenous injection of the saline solution is remarkably rapid. The time required for the return of the red corpuscles to their original number after loss of blood, without subsequent transfusion of blood, varies from two to three weeks. With subsequent injection of simple saline solution it is the same; whereas with subsequent transfusion of blood complete recovery is delayed a week or more. Further, what is perhaps more striking and certainly is of more importance, is the fact that during the subsequent recovery the animals generally appear to be in better health after intravenous injection of the saline solution than after transfusion of blood. The intravenous injection of the saline solution is, then, to be recommended above all other operations in cases where there is a fall of blood-pressure due to the excessive loss of blood. Its use is also indicated during severe operations as a preventive of traumatic anemia.

There have been many theories advanced in regard to the pathology of shock. Some are of the opinion that the great mass of blood, owing to vasomotor disturbances, stagnates in the abdominal vessels, but little of this fluid getting to the vital centers. Others adopt the theory of reflex paralysis of the vasomotor nerves, holding that at first there is contraction and subsequently general dilatation of the blood-vessels, and that the heart is unable to force the small amount of blood through the empty vessels. Its own muscles are insufficiently supplied with stimulus, and it gradually stops beating. If either of these theories be accepted, or if we pin our faith to the theory that shock is a sort of heart failure due to a temporary paresis of the muscles of the heart, the indications for treatment in each case are the same, and the whole problem rests upon the inability of the heart to force the blood through the blood-vessels and at the same time to furnish proper nutrition to its own substance. Experiments upon animals prove the importance of the fluid in the cavities and in the heart substance itself. If the heart of a frog be taken entirely out and emptied of blood, the beating will stop; but if a few drops of warm water or blood be introduced into the ventricle the contraction will recommence. Even frag-

ments of the heart will contract and dilate if a few drops of warm water be applied. While the presence of fluid, whether blood or warm water, within the heart cavities will stimulate the muscular fibers and cause contractions, we know that contractions are influenced by the presence of blood in the heart substance itself.

With each ventricular systole blood is forced into the aorta and the blood that the coronary vessels receive is delivered by these vessels into the substance of the heart. The importance of blood flowing through the coronary system of vessels is evident when it is known that if the coronary arteries of an animal be ligated the heart will almost immediately stop beating. Since the coronary arteries arise from the aorta near its commencement and immediately above the semilunar valves, they must necessarily be the first vessels in the body to receive a portion of the heart's contents. Accordingly the heart muscles must be the first muscles in the body to receive nourishment, and nourishment means muscular force. In the first theory of shock the blood stagnates in the abdominal vessels, and naturally the heart muscles are forced to feebly contract, practically, on space. The blood, and particularly the carbonic acid in the venous blood which is known to stimulate the inner wall of the heart and cause contractions of the muscles to a certain degree, cannot reach the heart in sufficient amounts to do good. As the general circulation is depressed the coronary circulation, which is a source of power in itself, is bound to suffer in proportion. In the second theory the conditions are about the same. The last theory shows blood to be in the heart cavities, but the contractions are not of sufficient force to drive it out with the proper vigor.

Physiologists tell us that the flow of blood in the veins is essentially due to the contractile force of the heart. Experiments, as we have just seen, show us that vigorous contractions of the heart can be produced by introducing a warm solution into the ventricle. With a cannula in the median basilic vein, or if necessary in extreme cases in the external jugular, a warm saline solution can be forced into the right side of the heart. The presence of the solution will not only give the fluttering heart something to contract upon, but will stimulate the inner wall and cause contractions. A few vigorous contractions should be a factor in starting the great mass of blood that had settled in

the abdominal vessels. With the return of the venous blood to the right side of the heart will come the carbonic acid, which is known to be a powerful stimulus to the inner wall. With the return of the arterial blood, the coronary vessels will receive their share and give to the heart the nutritive materials out of which the muscular or contractile force of the heart is developed. No doubt in many cases of shock death occurs from the want of a few vigorous contractions of the heart muscles. Some may take the ground that the changes in the vascular system in shock are secondary to the action of the sympathetic nervous system. I am treating the effect rather than the cause.

If the condition in regard to the circulation in shock be due to a general depression of the nervous system, or if the weak action of the heart be due to a vasomotor paralysis, or if we accept the theory that overirritation causes fatigue of the nerve centers and this is manifested by reflex paralysis, our object in each case is the same, namely, to support the heart's action the best we can until the nervous system as a whole or a part recovers itself, and when this happens the individual filaments as well as the centers will receive Nature's stimulus, the blood.

It is well enough for some to treat shock with such drugs as are known to exert their chief influence on the nervous and vascular systems, such as strychnine, digitalis, etc., but it should be remembered that these drugs are only useful in cases where the vitality of the system is in such a condition that absorption can take place. If the blood circulates freely in the tissues, absorption is active; but if the circulation is depressed, absorption is slow.

In cases of severe hemorrhage, collapse or shock the subcutaneous tissues are deprived of blood to such an extent that absorption cannot take place. So the repeated doses of powerful drugs which have been introduced into the subcutaneous tissue from time to time during collapse, shock, or the exhaustion from hemorrhage, cannot be absorbed until the vital functions of the patient are restored; then these drugs, suddenly absorbed and acting together, may poison the patient.

In December, 1893, Dr. William Wells and I were called to see a young woman who had just given birth to a large child and was having a fearful post-partum hemorrhage. We induced uterine contractions by injecting hot water and packing, after which we directed our attention to her exhausted state,

as she had lost so much blood that she was nearly dead. There was in the patient's room a bottle which contained a solution of strychnine; five minims of this solution contained one-twentieth of a grain of the alkaloid. A metal barrel hypodermic syringe, the capacity of which was thirty minims, was filled from this bottle and handed to me when I asked for one-twentieth of a grain of strychnine in solution. The contents of the syringe was injected into the patient's arm. This injection had no effect, and half an hour from the time it was given we were informed that the syringe instead of containing one-twentieth of a grain of strychnine dissolved in thirty minims of water, each five minims contained one-twentieth of a grain. It was evident that the patient had received at one injection three-tenths of a grain of strychnine without producing any perceptible changes in the respiratory, circulatory or nervous system. We attributed our good luck to the non-absorbing qualities of the tissues, and for fear of getting poisonous effects of the drug when reaction occurred, thirty grains of bromide potassium and fifteen grains of chloral were given by the mouth, and twenty minutes later a similar dose of the same drugs was given by the rectum. The patient recovered and was living and in good health one year after the confinement. The solution used in this case was prepared at the Jefferson Hospital drug dispensary, and I have every reason to believe it was fresh and capable of producing positive effects under favorable circumstances.

I mention this case to show that in cases of excessive hemorrhage the vitality of the patient is so reduced that drugs cannot be absorbed.

If absorption cannot take place when one is bleeding from his vessels, I cannot see how it will take place when one is bleeding into his vessels, as in case of severe shock. In both conditions the circulation is so interfered with that the tissues do not receive enough blood to even start absorption.

Drugs by the rectum, drugs by the mouth and drugs by the hypodermic method have no place in extreme shock. Paget says: "There is, perhaps, no case in the management of which the courage to do little is more needed than in shock. Great energy of treatment may do great mischief." Rest, external heat and the intravenous injection of a warm solution seem to meet the indications in extreme shock. When the signs of

reaction have well appeared, the use of saline solutions must be discontinued; then comes the time for the use of strychnine, digitalis, etc. The quantity of the saline solution to be injected varies according to the age, the amount of blood lost in cases of hemorrhage, and the reaction signs in cases of shock and collapse. In cases where there has been considerable blood lost the amount should be greater than in cases of collapse or shock. The quantity ranges from a few ounces up to three or four quarts. The chief guides in any case are the return of the pulse, with increase in volume and diminution in rate (for instance, a fall from 140 to 90 or 100), return of color, facial expression, and consciousness. The temperature of the solution should be kept at about 100° while injecting. A convenient way of handling the solution is as follows: Have three quarts of a cooled boiled solution containing twelve drachms of salt. When the time arrives to administer the saline solution, take a small quantity of the above solution and add to it an equal amount of boiling water; the solution will then be ready to inject. The fluid should be forced in gently and the pulse should be carefully watched for fear of overloading the vessels. Strict attention should be continuously given to the pulse and respiration in cases of shock and collapse treated by this method.

Where this treatment has extended over a considerable period and the quantity injected has been large, the condition of the bladder should be looked after. The technique of the operation is simple.

While any large superficial vein could be used to receive the solution, the median basilic has in a large majority of cases been selected. In some instances, according to the collapsed condition of this vein, it cannot be identified. The outline of the vein can be made prominent if a moderately tight bandage be applied around the arm just above the elbow and then have flexion and extension performed at the wrist. These movements will increase the blood-flow and distend the wall of the vein.

After the parts have been thoroughly cleansed and the forearm placed in a position of supination, an incision one inch in length should be made over the vein at the bend of the elbow and carried through the skin and superficial fascia. This incision will bring into view a layer of fat, which is very often seen and very rarely spoken of in our text-books. In all of my cases this layer of

fat was present. With a blunt instrument the fat can be torn through and the vein exposed. Three catgut ligatures should be placed under the vein, and one of the ligatures should be drawn well down into the lower angle of the wound and immediately tied. An opening just large enough to receive the cannula should be made in the vein wall above the point where the ligature was tied. Into this opening the end of the cannula is introduced. A second ligature is now tied around that portion of the vein which includes the end of the cannula. This ligature not only holds the instrument in place, but prevents the entrance of air. After the required amount has been injected, the third ligature should be tied in the extreme upper angle of the wound above the end of the cannula. The cannula can now be taken from the vein, or that part of the vein between the upper and lower ligatures can be excised, removing the excised portion of the vein with the cannula in situation. The wound needs no drainage, is closed with several silkworm-gut sutures, and dressed with aseptic dressings.

In extreme cases of shock, hemorrhage or collapse the superficial veins may be so empty that they cannot be made prominent by the bandage and wrist movements. If the vein desired is not readily found, a transverse incision should be made in the subcutaneous fat across the line of the vein. This incision will divide the vein and the collapsed ends can be recognized. The lower end should be ligated and the upper end should be treated as in the above operation. The instrument used in conveying the solution must be as clean and as simple as possible. When there is no special instrument at hand for introducing this solution by the intravenous method, an ordinary glass or rubber syringe, with a piece of india-rubber tubing attached to its nozzle and a cannula attached to the other end of the tubing, will suffice. The cannula can be of glass or metal. A small goose-quill would answer equally well in emergency cases. One of the most convenient and safest instruments for this purpose is Collin's transfusion apparatus. It was used extensively for transfusing blood during the French and German wars and gives perfect satisfaction. This apparatus was used with success in the cases that I will speak of presently. Collin's instrument consists of a reservoir or basin which is funnel-shaped and holds about one pint. To the bottom of this basin is attached a glass syringe which holds half an

ounce and works like any other ordinary syringe. To the lower angle of this syringe is attached a rubber tube with a cannula at its end. The entrance to this tube is guarded by a hollow ball-valve made of aluminum, which completely excludes the air. The basin is filled with the solution, the piston is drawn back, and the barrel of the syringe becomes filled; the piston is then pushed, which drives the ball-valve up and allows the fluid to go through the tubing and cannula into the vein. After one syringe-ful is thus delivered the ball drops back over the entrance of the tube. To be sure that there is no air in the tubing or cannula, one syringe-ful should be emptied before the cannula is introduced. After the first syringe-ful is delivered it is impossible for air to enter. The basin should never be less than one-third full, and the solution in the basin can be kept at the proper temperature by constantly adding small quantities of the saline solution, hot or cold, according to the temperature of the fluid in the basin. While the presence of air in the vessels in small quantities has been shown by experiments not to be injurious, it is best to avoid it if possible.

I am inclined to think that the intravenous method of introducing the saline solution into the venous system would be used more freely if it were not for the disturbances that the air in the vessels is claimed to cause. And why should we fear the small amount that is liable to get in during this operation, when we are told by Hare that death only occurs when a pint or more has been introduced into the vascular circulation? The circulation can, no doubt, handle a small amount of air without fatal results. I have seen the internal and external jugulars and the axillary veins torn without any perceptible changes in the circulation, and I am sure in each case considerably more air gained entrance than could possibly get in during the operation for intravenous injection.

My experience with the saline solution used intravenously is limited to only four cases, though I have seen it used in other cases with good results.

Cerebral surgery is almost always accompanied by severe shock, particularly when there has been considerable blood lost, as happens when brain tissue is being removed. Profound shock is sometimes seen to follow exploratory operations upon the brain, even when nothing more has been done than exposing the dura.

While we are ready to admit that the shock caused by the removal of a limb at a joint is claimed by some to be modified if a portion of the limb had some time previously been removed, we know that no patient can have his clavicle resected, subclavian vessels ligated, brachial plexus incised, scapula, portion of the clavicle and arm all removed at one operation without considerable hemorrhage and profound shock. It goes without saying that an extensive resection of the lung tissue for disturbances caused by traumatism is followed by a hemorrhage which kills in the vast majority of cases.

The following cases, with the exception of the first, will serve to demonstrate the usefulness of the saline solution used intravenously for counteracting the effects of operations which ordinarily are accompanied by severe shock. While the first case that I will speak of throws no light on the use of the saline solution in cases of shock and hemorrhage, it shows us the effect this solution has when introduced into the vein of a person who has normal secretions, normal blood-pressure, normal temperature, and normal respirations. I believe it is the first case on record where the saline solution has been introduced into the circulation of a human being in whom the vital functions seemed in every respect normal.

CASE I.—Joseph L., aged forty-eight, was admitted to the surgical wards of the Jefferson Medical College Hospital, July 28, 1896. Diagnosis: carcinoma of the tongue with extensive glandular involvement. The floor and sides of the mouth were so infiltrated that it was impossible to make a careful examination, so it was decided to give the patient ether, make a thorough examination, and if possible remove the diseased tissue. From the condition of affairs it seemed certain that the operation would be long and bloody. In view of this fact Professor Hearn asked me to be ready to administer the saline solution intravenously in case it was needed. On August 1, 1896, the patient was anesthetized, and while the mouth was being cleaned I exposed the median basilic vein and introduced into it a cannula attached to a Collin transfusion apparatus. The mouth of the patient was now forced open for examination. The tongue was found to be infiltrated throughout; it was dark, thick, and fixed. Its motion was so limited that it could not be brought forward. The disease extended to the pillars of the fauces, the soft palate, and the tonsils. The floor of the mouth, the

gums and the jaw bones were involved, also the cervical glands. After a most thorough examination, Professor Hearn concluded an operation in a condition like this would not only subject the patient to a great risk, but could not in any way prolong his life, and for this reason no operation was performed. The patient had now been under the effects of ether for fifteen minutes and he was none the worse for it, as his pulse was 81 per minute, temperature 98.6°, and respiration 20. Having everything ready for the intravenous injection of the saline solution, and thinking that no harm could befall the patient if a small amount was carefully injected, I did not hesitate to try to ascertain the effect of the saline solution in a patient whose vital organs were functioning properly. Dr. Meals, who was at this time resident surgeon to the women's surgical wards, kept his finger on the radial pulse of the left arm while I was injecting the solution into the median basilic vein of the right arm. His report was as follows:

| Time.           | Amount injected. | Pulse.                 | Respiration. |
|-----------------|------------------|------------------------|--------------|
| 12.30 P.M. .... | None.            | 85                     | 20           |
| 12.32 P.M. .... | Two ounces.      | 85                     | 20           |
| 12.34 P.M. .... | Two ounces.      | 81 (volume increased). | 20           |
| 12.36 P.M. .... | Two ounces.      | 79 (volume increased). | 18           |
| 12.41 P.M. .... | Two ounces.      | 71 (volume increased). | 18           |

The patient soon recovered from the effects of the anesthetic and passed four and a half ounces of urine (his bladder was evacuated immediately before he was anesthetized).

This case is interesting from several points of view; it shows us that eight ounces of saline solution can be introduced, within a period of nine minutes, into the blood vascular system of an individual whose vessels are already filled without perceptible evidence of engorgement. It clearly demonstrates that the vital functions are increased by the presence of the saline solution within the circulation.

From the fact that the patient passed four and a half ounces of urine one hour after he had evacuated his bladder, and forty-five minutes from the time of the first injection and thirty-six minutes from the time of the last, it is reasonable to believe that the increased blood-pressure caused the kidneys to become active, and they were endeavoring to equalize the blood-pressure by getting rid of any superfluous fluid.

The case just spoken of being the only

one in my list of five in which no operation was performed, I numbered it No. 1, so as to clear it of the operative cases, though it was the third to receive the solution. My first experience with the saline solution used intravenously was at the Orthopædic Hospital on June 5, 1896. The history is as follows:

CASE II.—H. McD., aged twenty-eight, was admitted for the first time to the above named hospital on March 16, 1893. He was suffering from epilepsy, supposed to be caused by a brain tumor. On the 3d of April Professor Keen exposed a portion of the brain for exploratory purposes; nothing unusual was visible. A grooved director was passed into the right lateral ventricle; no tumor was found. The director was then passed about two inches down and back into the brain substance. Nothing abnormal could be detected, and it was decided if any tumor existed it was deep at the base of the brain. This operation was followed by considerable relief for a time; but later the epileptic attacks returned, and the patient was brought back to the hospital. Upon his arrival the second time his symptoms and physical signs of a cerebral tumor were prominent and the patient was very weak. On the 6th of June, 1896, Professor Keen reflected the portion of the scalp that overlay the tumor; the bone had been removed at the previous operation. The opening in the skull was enlarged, and through it two ounces and one hundred and fifty grains of diseased brain tissue was removed. This was attended by a fearful hemorrhage, and the patient was rapidly sinking. I was asked to give him an intravenous solution. This was my first experience with the solution used in this manner, and the inexperience, combined with a new transfusion apparatus which was minus an important washer, produced effects which were not as prompt and as satisfactory as they might have been, though I managed by perseverance and time to get into his vein enough of the fluid to have a mild effect on the circulation. He was somewhat shocked after the operation, but soon reacted and recovered from the operation.

CASE III.—W. H. B., aged twenty-eight, was admitted to the Jefferson Hospital on July 11, 1896. Diagnosis: tumor of the brain near the cuneus. He was suffering with terrible headaches, was very weak, and hardly able to walk. There was a history of progressive loss of strength, weight, and sight. When admitted he had right lateral hemi-

anopsia and passed large quantities of urine, the amount varying from ninety to one hundred and twenty ounces in twenty-four hours. The original history of this case could not be found, and I am indebted to Dr. J. Roe for the above interesting facts connected with it. My notes of the case show that he was operated upon on August 5, 1896. After he was anesthetized his condition was somewhat alarming; the pulse was rapid and weak, 132 per minute, respiration 24 and shallow, skin cold and clammy. Professor Hearn was about to send him back to the wards without touching him with an instrument, and would have done so if his condition had not improved under the use of the saline injection. The operation lasted fifty minutes and consisted of opening the skull and exploring the brain with finger and dural separator. Nothing was found to account for the disturbances. Dr. Dengler, chief anesthetist at the hospital at the time, and Mr. Sciple, a third-year student, kindly paid particular attention to his pulse and respiration while I was injecting the solution. They furnished me with this report:

| Time.         | Amount injected. | Pulse. | Respiration. | Face.         |
|---------------|------------------|--------|--------------|---------------|
| 1.07 P.M. . . | None.            | 132    | 24           | Pale.         |
| 1.09 P.M. . . | Three ounces.    | 132    | 24           | Pale.         |
| 1.15 P.M. . . |                  | 130*   | 24           | Pale.         |
| 1.19 P.M. . . | Three ounces.    | 130*   | 24           | Pale.         |
| 1.23 P.M. . . |                  | 124*   | 23           | Pale.         |
| 1.26 P.M. . . | Three ounces.    | 124*   | 23           | Pale.         |
| 1.28 P.M. . . | Three ounces.    | 120*   | 22           | Pale.         |
| 1.30 P.M. . . | Three ounces.    | 119*   | 20           | Pale.         |
| 1.35 P.M. . . | Three ounces.    | 100†   | 19           | Little color. |
| 1.42 P.M. . . | Three ounces.    | 90†    | 19           | Fair color.   |

\* Volume increased. † Full.

1.51 P.M. Patient shows signs of throwing off the anesthetic.

1.51½ P.M. Cannula removed; patient in fair condition.

The patient made a rapid recovery from the operation.

I am sorry that I cannot show a complete history with the urinary report of this case, but the facts as they stand show that a person considerably shocked from disease and the anesthetic can be benefited by the introduction of a warm saline solution into the circulation. A reduction of the number of heart-beats from 132 to 90, with increased volume during a period of forty-four minutes, shows the value of administering the solution while the person is passing from shock into what would be in a little while extreme shock. Following the pulse-rate and volume in this case from the beginning of the first injection to the time the opera-

tion was completed, it substantiates what I said a few moments ago in regard to the influence of a warm solution introduced into the right side of the fluttering heart.

CASE IV.—J. M., aged twenty-eight, was admitted to the Jefferson Hospital on May 26, 1896, suffering from the effects of a recurrent carcinoma of the upper third of the right arm and shoulder. The arm had on a previous occasion been amputated at the middle third for a carcinoma, which began in the thumb and was gradually extending up the forearm. On June 3, 1896, Professor Hearn removed the entire upper extremity, including the scapula and outer two-thirds of the clavicle. The operation was preceded by resection of the clavicle and ligation of the subclavian vessels. The patient was cold, and in a perilous operation like this severe shock seemed inevitable. Dr. Gilbert, then surgical resident in the men's surgical ward, assisted me in looking out for the patient's general condition. By the external application of heat and the introduction of twenty ounces of warm saline solution into his median basilic vein, he suffered very little shock and soon recovered from the operation.

CASE V.—G. P., aged eighteen, was admitted to the Jefferson Hospital on June 17, 1897. Diagnosis: Gunshot wound of the chest. On admission his pulse was 100, respiration 32. Soon after admission he became delirious, pulse increased to 132 per minute, and his skin became cold and clammy. He showed all signs of internal hemorrhage. Accordingly, Prof. J. Chalmers DaCosta aspirated, and, finding blood, followed this by resecting three ribs, opening the pleural cavity, removing necrotic lung and pleural tissue, ligating a number of vessels in the lung, and packing with sterilized gauze. The blood that escaped through the wound in the chest was caught in a bucket, and it amounted to half a pint over a gallon. To counteract the effects of this, two quarts of the normal salt solution was used intravenously. Professor Da Costa thinks that the intravenous injection saved his patient's life. (I had nothing to do with the administration of the saline solution in this case, nevertheless I am glad to report it with my own cases, as it admirably shows the effect of this fluid in an operation on a vital organ with a considerable loss of blood.)

Dr. Lewis A. Stimson (*Medical News*, Dec. 19, 1896) reports a number of cases of pure shock which he treated with the intravenous

injection of the saline solution. Three of his cases were accident cases, and when admitted to the New York Hospital were in a condition of extreme shock. They recovered under the use of the saline solution.

*SCHEDE'S OPERATION FOR AN OLD EMPYEMA; CATHCART'S DRAINAGE;  
RECOVERY.\**

By W. W. KEEN, M.D.,

Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia.

J. F. S., aged twenty-four, was sent to the Jefferson Medical College Hospital by Drs. John and George Potteiger, of Hamburg, Pa., December, 1895. His family and personal history are negative, excepting that at twelve years of age he had an attack of chorea, which lasted for a year and recurred slightly a year later, but has never returned.

In April, 1895, between eight and nine months before his admission, he had a left-sided pneumonia followed by pleurisy with marked bulging of the precordial region. This was incised, and drained on May 30. A second incision was needed at a later date, and a third about the 1st of August. On admission there was no healthy breath sound over the entire left side of the chest. The left chest wall was considerably flattened, especially at the upper portion. The apex of the heart was displaced two inches to the right. Specific gravity of urine 1.032; neither albumen nor sugar.

Three sinuses still existed at the point where the incisions were made (Fig. 1). Evidently the attempt by Nature to cure by approximating the chest wall had not succeeded by reason of the rigidity of the chest wall. This, from the long-continued supuration, I deemed to be probably due as much to the thickened pleura as to the ribs.

Operation December 4, 1895. I first made an incision connecting the various sinuses and removed the diseased tissues around these apertures. An opening into the interior of the chest was found between the fifth and sixth ribs just in the nipple line. A long probe reached upward as high as the clavicle, downward to the diaphragm, and backward to the posterior wall of the chest. A long curved incision was made extending from the first incision to the scapula. The flap covered most of the side of the chest.

The incision was made directly down to the ribs, and all the soft parts external to the ribs were lifted. Beginning then at the opening into the chest cavity, by a large pair of bone pliers I divided all the tissues of the chest wall up to, but not including, the second rib, downward to the diaphragm, and at the upper and lower extremities of this incision I divided the entire thickness of the chest wall well back under the anterior edge of the scapula, and vertically between the ends of these last, thus removing the wall of the chest (except the flap) from the third to the eighth ribs inclusive. The pleura was nearly an inch thick and its cavity was filled with pus. The left lung was obliterated and bound to the inner side of the apex of the left chest; the pleuro-pericardium forming a vertical diaphragm about an inch inside the nipple line. The entire surface was curetted



FIG. 1.

and lightly packed with iodoform gauze. The flap was then sutured in position, except at an opening below for drainage. My intention in suturing the flap except a small drainage opening was to obtain its adhesion to the soft parts as far as I could. I then intended in three or four days to cut the sutures at the apex of the curve so as to get more room for drainage and packing; especially would the drainage be good when he was in the erect posture. No trouble was experienced with hemorrhage. The bone forceps apparently arrested the hemorrhage by crushing. The ribs were adherent to each other.

After the operation his temperature fell to 95.6°, but by the fourth day had gradually risen to 102.2°. On the sixth day it had

\*Read before the Surgical Section of the College of Physicians, April 9, 1897.



fallen to the normal and remained so till he was discharged.

I found, after the first few days, that the abundant suppuration in the old cavity of the pleura was not freely drained by the gauze, and accordingly I applied the apparatus of Mr. Cathcart as modified by myself (*Annals of Surgery*, February, 1896). This kept the cavity entirely free from pus.

At the time of the operation the cavity held considerably more than a quart of pus. In two weeks there had been such contraction that it held less than a pint. He was discharged on January 22, 1896. There was still a small fistulous opening, leading to a cavity holding about three ounces. By the end of February it only held two ounces, and the falling in of the flap was rapidly advancing toward cure.

The operation that I did in this case, and also in another (*Annals of Surgery*, June, 1895), is not precisely that of Schede in its details, but practically is the same, and I have therefore called it by his name, though I employed it in my first case without knowing that Schede had ever done it. His original paper will be found in the *Verhandl. d. Cong. Innere Med.*, 1890, p. 41. Schede's operation is not as well known in this country as it ought to be. Ferguson (*Journal of the American Medical Association*, Jan. 9, 1897) in reporting a case stated that in looking through American medical literature he had not been able to find any other case whatever, overlooking the first case of my own to which I have just referred. Estlander's operation (thoracoplasty) is very well known and finds a place in all the text-books. Schede's, which is a radical improvement of the same, receives bare mention in the recent systems of Park and Dennis, and is not even referred to in Mr. Treves' System of Surgery or in his Operative Surgery. The American Text-book of Surgery describes the operation quite fully.

The operation of Schede is especially applicable to very old cases in which the pleura, as in the present case, reaches the thickness of an inch or an inch and a quarter. It is very evident that mere removal of the ribs, leaving such a thickened pleura, will do no good, since the pleura is so stout and firm that it preserves the arch of the chest wall and therefore the cavity persists. Accordingly, the principle of Schede's operation is to make a flap of the soft parts down to the ribs, and then remove ribs, intercostal muscles and thickened pleura entirely. The flap,

which has been raised, is then replaced so that the skin and subcutaneous tissues lie directly on the inner side of the old thickened pleura, which should be thoroughly curetted before the flap is replaced.



FIG. 2.

The incision begins (see Fig. 2) at the level of the axilla in front, extends below to the lower border of the pleura, and then curves upward posteriorly to the level of the second rib between the scapula and spine. The entire soft parts (including the scapula) down to the ribs are then raised. All of the ribs from the second or third downwards and from the costal cartilages to the tubercles are



FIG. 3.

removed. The thickened pleura is then, in the entire extent of the wound, split, and with the intercostal muscles are removed with a strong shears. In both of my own cases I have not first resected the ribs and



then the pleura as was done by Schede, but I have divided the entire chest wall under the soft parts by a strong pair of bone pliers. If the intercostal arteries bleed they are, of course, ligated. In my own cases I did not have to ligate any of them. Apparently the crushing of the forceps jaws prevented the hemorrhage. After thorough curetting of the visceral layer of the pleura, the flap is then laid upon the lung and pleura where it usually heals *per primam*, with an immediate subsidence of the fever. In both of my own cases I have found it necessary to drain for a considerable period. The best method by far of accomplishing this object is by the Cathcart drainage.

The same free motion of the arm which I obtained in my first case is equally evident in the present case (Fig. 3). The left lung has expanded more than I had believed possible—to the third rib. There is a marked left dorsal lateral curve, so that the vertebral ends of the ribs reach the posterior axillary line. The whole left chest wall is unexpectedly firm and protects well the heart, the pulsation of which is very evident and is still displaced to the right.

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*THE INFLUENCE OF THE X-RAY METHOD  
OF DIAGNOSIS UPON THE TREAT-  
MENT OF FRACTURES.*

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BY CHARLES LESTER LEONARD, A.M., M.D.,  
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The discovery of a new and more accurate method of diagnosis, or of a shorter and more effective treatment, is always welcomed by the profession with an enthusiasm and eagerness which is often in excess of the true value of the method; and it is only after a long and severe trial that its merit can be determined.

Roentgen's discovery and its application to surgery was no exception, but during the two years that have elapsed since its introduction, the *x-ray* has demonstrated its scientific value even to the most skeptical. There have been many failures where it has been employed, and many foreign bodies "located" that could not be removed. These failures, however, were not the fault of the method *per se*, but of the crude and inaccurate manner in which it was employed. Accurate results can never be obtained by crude methods or instruments, and now that methods and instruments of precision have been intro-

duced in the application of the *x-ray* to surgery, these failures are rapidly decreasing in frequency, and as experience grows greater will become practically unknown.

It cannot be expected of any new method of diagnosis that it will replace or at first even equal methods which have attained accuracy and scientific precision by the study and experience of generations of observers, and yet this new method of diagnosis has already produced results which markedly affect the treatment of certain forms of fracture.

The amount of accuracy and the additional knowledge which can now be obtained by the aid of the *x-ray* picture is very great, and the practitioner who desires the best functional result for his patient will demand this additional aid in making his diagnosis complete and determining the best method of treatment; or at least will have skiagraphs taken to show the correctness of the treatment and to determine when changes should take place.

Fractures occurring in the shaft of long bones are not greatly benefited by this method unless it be in those difficult cases where the symptoms are rendered obscure by the thickness of the limb, the form of the fracture, or the contiguity of a neighboring sound bone. The greatest service which the *x-ray* renders is in the exact determination of the form of fracture in those difficult cases where a joint may be involved. The rapid swelling which always follows an injury near a joint renders the diagnosis difficult, while the exudate destroys any marked crepitus. Thus the determination of the exact line of fractures makes possible the adoption of a line of treatment, which would otherwise often be impossible. The point where danger is to be expected from exuberant callus, or the blocking of the joint by overlapping of the fragments, is made clear and readily avoided by appropriate treatment, which instead of being general and applying to all forms of injury about a joint, may be directed to the treatment of that particular case, with a much better functional result. In many instances fractures that lie wholly within the capsule of the joint and thus escape detection are distinctly shown and are rendered amenable to treatment other than that for "bad sprains."

Many fractures which have been described as rare have been shown by this method to have been rarely detected, while the exact determination of the form of the fracture and the recognition of minute comminuted frag-

ments have rendered coaptation more precise and the result of treatment more perfect.

In cases of delayed union or of ununited fracture, or where fibrous union is suspected, the x-ray picture shows the presence or absence of bone salts in the callus, the line of fracture in cases of fibrous union, or the maladjustment of the fragments, which has caused the poor result, while it aids the surgeon in determining the exact treatment necessary for the individual case.

The influence of this knowledge on treatment can scarcely be estimated, but the functional results obtained in many cases prove its great value. To secure the best results accurate methods must be employed and skiagraphs must be taken from more than one point, as inaccurate methods are liable to produce distorted images and a single picture may show the least deformity. One of the greatest influences of this method upon the treatment of fractures is the change it is bringing about in prognosis. Antisepsis has robbed the compound fracture of its gravity, and the skiagraph has shown that in many cases the simple fracture is much more dangerous and liable to be followed by greater deformity and loss of function, and that its name is often a misnomer. This result has produced a strong influence for a change in our nomenclature of fractures, the terms open and closed being substituted for simple and compound.

The most important change produced has been in the treatment of certain "simple" fractures, and the old but true saying applied by Sir Benjamin Ward Richardson to the treatment of obscure abdominal injuries should be applied to many of these simple fractures: "Because we are in the dark let us let in the light."

The x-ray has enlightened the darkness of fracture diagnosis and has shown that advancing surgery demands that we let the daylight into our treatment of many of these cases; they should be laid open and the bone exposed to the eye of the surgeon. Under perfect asepsis there is no danger commensurate with the advantages gained. Blood-clots can be removed, perfect approximation can be secured and maintained by appropriate wiring, pegging, or plates, and overlapping and distortion absolutely prevented.

Gross lesions and irregularities in outline can be detected with the fluoroscope; minute detail and accurate knowledge, essentials in the directing of treatment, can only be obtained in skiagraphs. The fluoroscope, how-

ever, may be used with effect in the adjustment of the fragments, the symmetry of the bones and the interosseous spaces being maintained with greater accuracy. After the fracture has been set and the dressings applied, a skiagraph taken through the dressings gives absolute proof that the proper adjustment has been made.

Among the fractures to which the author has applied this method of diagnosis with great benefit to the after-treatment are: Fractures of the phalanges; Colles' fractures; fracture of the styloid process of the ulna, its shaft, the coronoid process, the olecranon; fractures of the shaft of the radius, its surgical neck; intracapsular fractures of the articular surface of the humerus, various fractures of its condyles entering the joint; supra-condyloid fracture; fracture of the shaft, the surgical neck; fractures of the coracoid and coronoid processes of the scapula; simple, comminuted and green-stick fractures of the clavicle; fractures of the lower jaw; fracture of the axis; fractures of the femur in various parts of the shaft and condyles; fracture of the patella; fractures involving the articular surface of the tibia; spiral fractures of the tibia with fracture of the fibula; various forms of Potts' fracture, including chipping off of the posterior articular surface and linear fracture of the external malleolus; fractures of the astragalus, the os calcis, the metatarsal bones, and phalanges; and besides numerous instances of epiphyseal separation. In these latter cases the diagnosis is extremely valuable on account of the absence of ordinary symptoms, and the bearing upon treatment is always very great. In all cases where a former injury existed and a refracture has taken place, or a fracture of a neighboring bone, the service rendered is always very great, as the old distortion renders the accurate setting of the fragments almost impossible, as the normal can never be attained. Here, therefore, the treatment is markedly benefited by this method.

The majority of the cases studied were brought to the laboratory; many of them were private patients, while in a number of instances where the patient was unable to come to the laboratory the skiagraphs were made by his bedside. The benefits of this method of diagnosis upon the treatment of fractures is not restricted to hospital practise; developments and improvements in construction make the apparatus readily transportable and render its use in general practise possible.

There seems to be no doubt that the only

ground for damages in suits for malpractice must be, as formerly, based upon expert testimony as to the amount of deformity and functional disability of the patient. The skiagraph can only show that the fracture had been properly set by the surgeon, and that the resulting deformity was the fault of the patient. Skiagraphs of old fractures with perfect functional results do not show symmetry, and it should not be demanded, unless the patient allows the surgeon a better opportunity, as by open operation, for treating.

There is, however, reasonable ground for holding that unless a skiagraphic examination of the fracture has been made, or at least suggested by the practitioner and declined by the patient, it cannot hereafter be said that where functional disability exists the practitioner has employed all reasonable and ordinary means, to the best of his ability, in the treatment of the fracture.

1930 CHESTNUT STREET.

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NOTE ON THE DRAINAGE OF LARGE  
CAVITIES AFTER SURGICAL  
OPERATIONS.

HEATON in the *British Medical Journal* of January 22, 1898, says when a hollow organ such as the urinary or gall-bladder has been opened, or when a large suppurating cavity has to be drained, the surgeon after his operation often has much difficulty in keeping the patient and his dressings dry and clean. If it be some intraperitoneal structure, such as a suppurating gall-bladder, liver abscess, or suppurating pelvic cyst which has been opened and then stitched to the parietal peritoneum, some efficient method of drainage during the first few days becomes of vital importance. The leakage of pus or other irritating fluid in the first few hours after the operation, before the cavity of the peritoneum has been shut off by plastic inflammation, has frequently been the cause of a spreading fatal peritonitis. But even when a hollow organ has been opened without involving the peritoneum—as in the case of a suprapubic opening into the urinary bladder—if the discharge be at all profuse, there will be considerable difficulty in keeping the dressing dry. It is only by an almost constant changing of dressings and the use of large quantities of absorbent materials for collecting the escaping urine that the patient can be kept at all dry and clean; and despite every care in nursing, the bed is apt to get wet and the patient chilled.

During the past twelve months the writer has tried several modes of drainage with a view of obviating this, and has at length found one which he believes to be both simple, efficient, and inexpensive. He lays no claim to originality in the principle of the apparatus. The idea, indeed, was suggested by seeing the siphon arrangement used by dentists for the mouth during their operations.

The principle of the apparatus is the keeping up of a continuous slight siphon action from the cavity to be drained by means of a modified Sprengel's pump. Only sufficient suction is required to keep up a siphon action; indeed, any powerful suction is apt to be injurious to the tissues of the patient.

The apparatus consists of a reservoir capable of holding about two gallons, which is connected by means of the tube with the upper limb of a glass Sprengel pump, which is usually fixed to one of the legs of the patient's bedstead. The side tube of the pump is connected by means of a second piece of drainage tubing with a perforated glass bulb, which is placed in the cavity to be drained.

When water is allowed to trickle very slowly from the reservoir through the pump into a pan placed below to receive it, sufficient siphon action is maintained in the side tube to remove even the smallest quantity of fluid as it collects in the cavity to be drained, and this passes down with the water from the reservoir into the vessel beneath the bedstead, leaving the patient and his bed quite dry.

The chief difficulty experienced was in securing a satisfactory glass ending to be placed in the cavity. When an ordinary piece of glass tubing was used, or one perforated at the sides, the wall of the cavity to be drained was soon sucked into the open end and lateral openings, giving the patient pain and putting an end to all siphon action.

This difficulty is overcome by having two tubes, an outer one perforated at the sides, which encloses an inner one which is connected with the pump. Fluid as fast as it collects in the cavity trickles through the perforations of the outer tube, and is then sucked up by the open end of the inner tube. Several such glass endings have been tried, varying in size and shape with the wound and cavity to be dressed.

During the past six months the author has used this apparatus on six patients after operation.

# The Therapeutic Gazette

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## Leading Articles.

### THE TREATMENT OF EXCESSIVE TYMPANITES.

There are three conditions in which excessive tympanites becomes a symptom of considerable importance, namely, typhoid fever, intestinal obstruction in its various forms, and in forms of pulmonary disease, chiefly pneumonia, in which the pressure of the gas upon the diaphragm and the thoracic viscera gives the patient much distress. Of course there are many other diseases in which a considerable quantity of gas may form at times in the stomach and intestines, yet it is in these three instances that we have named that it most frequently gives rise to serious discomfort or even danger. Under these circumstances the question at once arises as to what is the best method to give relief to the patient. In the majority of cases of typhoid fever this condition can be prevented, if the patient is seen early in his attack, by a proper direction of the diet and control of the bowels, using mild purgatives when they are needed to overcome constipation and mild antiperi-

staltics when diarrhea becomes excessive. In a proportion of cases, however, even these precautions are not successful in warding off this complication, and under these circumstances it is our custom to direct that a turpentine stupe as hot as the patient can bear shall be placed over the abdomen and allowed to remain until it produces considerable counter-irritation. The period during which it remains in contact with the skin varies of course with the susceptibility of that patient's skin to this irritant. It may be that other counter-irritants are equally useful, but experience has seemed to indicate to us that turpentine is the most efficient.

If the tympanitic distention is not relieved by this application, a rectal injection of two to four ounces of milk of asafetida, pure or diluted half with water, is resorted to, and if this does not give relief a few drops of turpentine are added to a fresh injection of milk of asafetida, care being taken that the turpentine is thoroughly broken up in the asafetida emulsion so that no separate drops of the irritant oil will come in contact with the rectal mucous membrane. In other cases turpentine made into an emulsion with starch water, or thoroughly mixed with sweet oil, and given by rectal injection is equally efficient; but if all these remedies fail, then the rectal tube passed well up into the sigmoid flexure as far as possible and as gently as possible will generally allow the passage of the wind. Should these comparatively moderate means fail to give the patient relief, the question at once arises as to what other means there are at our disposal, and in this connection it is interesting to recall the very careful and able studies made by Ogle, of London, a number of years ago upon the subject of puncture of the abdomen for excessive tympanites. This investigator has collected from the experience of a large number of medical and surgical friends a great number of cases, which he has placed together in a complete essay. The result of his study is that in a certain proportion of cases puncture of the abdominal wall and intestine is safe and expedient and often followed by good results, and that in cases which are necessarily fatal its use will often render the patient's death much more easy than had the distention been allowed to remain or increase.

In Ogle's studies it was found that the operation is suited chiefly to those cases which have distention of the colon and stomach, for the numerous coils and kinks

of the small intestine and the fact that its caliber is much less than either of the viscera which we have named render accurate puncture difficult unless the knuckle of distended gut is particularly prominent. It seems evident, too, that puncture of the stomach is rarely if ever justifiable, because great distention of this viscus can nearly always be relieved by the use of the stomach tube or esophageal tube. It is only when grave obstruction to the esophagus or cardiac orifice exists that puncture for distention of this organ is permissible. Ogle believes that incurable cases of bowel obstruction are relieved of their most distressing symptoms by this means, and that curable cases are greatly aided by it since by this means vital organs are relieved from pressure and purgative drugs which before the gas was withdrawn could not move the bowels have an opportunity of unloading them.

It goes without saying that in making the puncture careful antiseptic precautions as to the condition of the nails and the patient's skin over the abdominal area are to be taken. The skin should be as carefully prepared as it would be for an abdominal incision, and the cannula or hypodermic needle which is used for puncturing purposes should be as small as possible in order that the wound in the abdominal parietes and particularly in the wall of the gut may be so minute that the muscular fibers will immediately close it when the needle is withdrawn. Further than this, if a large needle is used which has to be reinforced by a trocar passed through it, this trocar, the point of which should be sharp, should not have triangular edges but be perfectly round, in order that the puncture can remain open; and, again, as there is a certain amount of danger in withdrawing the needle of infecting the peritoneum or the abdominal wound by minute portions of the intestinal contents which may adhere to the needle, it may be advisable to allow a small quantity of saline fluid to flow inwards through the needle while it is still *in situ* after gas has ceased to come away from it, in order that any intestinal contents in its caliber may be washed back into the bowel and not withdrawn into the wound. When it is considered what grave insults the peritoneum will receive without resentment when it is in a healthy condition, the danger of infection in the way that we have hinted at cannot be very great. On the other hand, it is not to be forgotten that in case of intestinal obstruction in particular the susceptibility of the peritoneum

to infection is greatly increased. It is better to make a number of punctures in various portions of the bowel for the purpose of relieving the gas, using in each instance a fine cannula or needle, than it is to use one or two punctures with a large cannula. Ogle asserts that fecal extravasation has never in his experience followed such punctures, nor have they given rise to adhesions; and, further, that should more serious operative procedures be required these punctures in no way increase the danger to the patient. In an editorial which was published in the *Medical News* some years ago the writer mentioned a case in which the ingestion of a number of pigs' feet which lodged in the lower colon caused intestinal obstruction to such an extent that all purgatives and injections were futile, and yet the cardiac distress was so great as to force the writer to the use of hypodermic needles, which were inserted at various points along the course of the colon. Gas rushed through these for fifteen minutes before the colon became entirely collapsed, but after its collapse the purgatives, which had been administered, acted and the obstruction was removed. Recovery followed.

We have called attention to this means of treatment of severe tympanites not because we think it should be used in many cases, but because it seems a justifiable operation in some instances. It is not to be resorted to carelessly, nor until every other means of greater safety for the removal of the flatus has been carried out; but as a last resource which will sometimes succeed, sometimes fail, in relieving the distention, and which is not so dangerous as to seriously imperil the patient's recovery. We believe that the physician should always remember this method of giving relief.

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#### THE QUESTION OF DIET IN TYPHOID FEVER.

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One of the gravest dangers which threatens the continuous success of the busy practitioner is the tendency to relapse into what is known as routine treatment, which consists either in prescribing identical preparations to patients with the same general disease, but with different manifestations, or adhering rigidly to fixed lines of diet when a little thought and care would enable him to vary the diet, and so improve the nutrition of the patient. At least he need not enforce strict adherence to a particular line of food products.

In no disease is the importance of liberal feeding greater than in typhoid fever, for in this malady the patient, through a number of weeks, has his strength continually sapped by fever, diarrhea, and the various complications of this malady, with the result that at the end of even a mild attack he finds himself in convalescence miserably weak and lacking both nervous and muscular energy. It is a noteworthy fact, familiar even to the laity, that this lack of power of mind and body often lasts for many months after apparent recovery has taken place. The question naturally arises whether this atony and asthenia are an unavoidable consequence of the disease, and if so, whether it is possible to modify them to such an extent that convalescence may be more rapid and that recovery from the attack itself may be the sooner arrived at. It has been the custom of a great number of the profession for many years to order an absolute milk diet for patients suffering from typhoid fever, and to continue them on this diet for a number of days or even a week after the fever has disappeared and the temperature of the patient has been normal. Further than this, this diet is frequently insisted on when complications of typhoid fever arise which still further aid in decreasing the patient's vitality, and often a milk diet is insisted upon when it seriously disagrees with the patient, who because of idiosyncrasy, or because of some complication of his disease, is unable to digest milk properly. We have reached these conclusions not only from general and personal experience in which we have recently had ample opportunity to become convinced of this matter, but by reason of an article published by Dr. Frederick C. Shattuck, of Boston, upon this topic. After some general considerations he tells us that from 1886 to 1893, 233 cases of typhoid fever were treated in the Massachusetts General Hospital under a milk diet, with a mortality of ten per cent.; from 1892 to 1897, 147 cases have been treated under a much more extended diet, with a mortality of 8.1 per cent. He recognizes fully the liability to error in reckoning from too small figures in any infectious disease, and while he does not urge that this slight decrease in mortality may have been due to the more liberal diet allowed, it certainly points to the fact, as he thinks, that the more liberal allowance of food has no deleterious influence.

Dr. Shattuck believes that we should treat the patient rather than the disease, and

feeding him with reference to his digestive power rather than solely with reference to his fever, particularly as there are many other articles of diet than milk which can by no possibility exercise a harmful influence upon the intestinal ulceration. The diet list which he allows and which would certainly be considered very liberal in the average hospital and in many cases of private practice is as follows:

1. Milk, hot or cold, with or without salt, diluted with lime-water, soda-water, apollinaris, vichy; peptonized milk; cream and water (*i.e.*, less albumen); milk with white of egg, buttermilk, kumiss, matzoon, milk whey, milk with tea, coffee, cocoa.

2. Soups: beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash; carefully strained and thickened with rice (powdered), arrowroot, flour, milk or cream, egg, barley.

3. Horlick's food, Mellin's food, malted milk, somatose.

4. Beef juice.

5. Gruels: strained corn-meal, crackers, flour, barley-water, toast-water, albumen, water with lemon-juice.

6. Ice-cream.

7. Eggs, soft boiled or raw; egg-nog.

8. Finely minced lean meat, scraped beef; the soft part of raw oysters; soft crackers with milk or broth; soft puddings without raisins; soft toast without crust; blanc mange, wine jelly, apple sauce, and macaroni.

There are several articles in this list which we believe few, if any, typhoid fever patients ought to receive, and these are the soups, the beef juice, and the finely minced lean beef. In our experience all of these preparations tend to produce or to aggravate pre-existing diarrhea; and beef broth, as is well known, provides a very favorable culture medium for the typhoid bacillus. We have frequently seen the use of animal broths substituted for milk, and active, ill-smelling diarrhea with great flatulence has followed. To the list just given we may add soft custards, and instead of limiting the patient to milk with white of egg we have recently seen most valuable results follow the administration of egg boiled just long enough to take away its raw taste and yet not to harden the white. From one to six eggs prepared in this manner and administered to the patient by means of a spoon or in a cup, if he is strong enough to drink the egg, will do much towards maintaining strength, particularly in those cases where milk disagrees.

*THE IMPORTANCE OF MAINTAINING  
BODILY TEMPERATURE DURING  
OPERATIONS*

We have from time to time called attention in the GAZETTE to the great necessity of maintaining bodily temperature after severe injuries and during surgical operations: First, because the operation usually necessitates considerable exposure of the patient's body; second, because the anesthetic, which is used, of itself aids very greatly in the dissipation of heat; and third, because heat is an absolute necessity to the proper carrying out of vital functions. Curiously enough, this very valuable aid to the maintenance of vitality is largely ignored by surgeons and physicians, and the writer has frequently seen patients suffering from the results of severe hemorrhage no more warmly covered than the average ward patients, and very rarely he has seen such patients provided with a sufficient amount of external heat properly applied to be of material advantage. It is true that surgeons almost invariably surround patients after an operation with hot bottles or hot-water bags, but this is equivalent to locking the door after the horse is stolen. It is much better for the patient that measures be taken before and during the operation to maintain his temperature. By so doing we firmly believe that many cases of severe bronchitis, pneumonia and suppression of renal function by reason of congestion will be avoided. In other words, it is our opinion that a certain proportion of the respiratory and renal difficulties which arise after the use of an anesthetic depend more upon the exposure to which a patient has been subjected than to the effects of the drug which he has inhaled.

The well known experiments of Lauder Brunton, who proved that rabbits could take, with impunity, otherwise fatal doses of chloral if the animals were provided with external heat, indicate the necessity of this means of treatment in cases of poisoning by depressant drugs, and the fact that investigators of the motor area of the cerebrum invariably place the monkey, or other animal upon which they are experimenting, upon a hot-water bed is another indication that patients may be benefited by a similar line of treatment. Indeed, one world-famous investigator in this line informed the writer of this editorial that all his early experiments upon cerebral localization were handicapped or rendered useless by the grave depression into which the monkeys which he had experimented upon

speedily passed when etherized, or chloroformed, if not supplied with external heat. Further, that without this external heat they all invariably died after recovery from the anesthetic. As soon as the hot-water bed was provided for them almost all, if not all, invariably recovered. Although this is a matter which the writer of this editorial has emphatically insisted upon in his Text-book of Therapeutics and to his classes at the Jefferson Medical College for a number of years, attention has again been called to it by a paper published by Dr. John S. Miller, of St. Joseph's Hospital, Philadelphia, upon the "Application of Heat in Anticipation of Surgical Shock as a Prophylactic Measure."

In discussing the vital necessity of maintaining bodily temperature in traumatic and nervous shock, and the still more vital necessity of regenerating heat after it has been dissipated, Dr. Miller has published a figure showing an arrangement by which long hot-water bags, of similar size and shape to those used for sawdust in the fixation of a limb after fracture, may be placed between the limbs and alongside the patient in order to provide him with sufficient heat. He also concludes his paper by that frequently repeated yet constantly needed warning that the patient, while partially anesthetized by shock or by a drug, shall not be burnt by bringing in contact with his body a brick, iron or hot-water bag containing sufficient heat to produce a burn. Even under the care of the most skilful surgeons nurses will at times in the hurry of completing the patient's toilet and arranging the bed surround him with bottles which produce severe burns, and we have recently met with a case in which the patient was confined to her bed for one week because of the operation itself, and then for four weeks more in order that a severe burn of the thigh and calf produced in the manner spoken of might have an opportunity to heal. The application of heat is therefore much like the application of any other remedial measure; it must be employed at the right time, in the right place, and in the proper degree.

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*THE TREATMENT OF GONORRHEA BY  
PROLONGED INJECTIONS OF  
PROTARGOL.*

When so many new drugs are exploited before the profession, often for distinctly commercial reasons and on insufficient clinical data, we have reason to be conservative

in accepting any one person's dictum in regard to the greater efficacy of a new preparation. When, however, a man as well known for his careful scientific work as is Neisser announces that he has had better, quicker and more permanent results from the use of protargol in gonorrhea than from any other single or combined remedies, this statement is worthy of serious attention and the drug should be given an extended trial.

Neisser prefaces his remarks on this comparatively new silver salt by some observations on irrigation treatment which he characterizes as difficult of execution, as no more efficacious than other methods in the large proportion of cases, and as likely to be attended by serious complications. With all these contentions those most experienced in irrigation will be inclined to disagree. Neisser himself acknowledges that in individual obstinate cases he employs this method. Hand injections, however, he characterizes as simple and readily applied by the patient. The syringe should contain at least  $2\frac{1}{2}$  to  $3\frac{1}{2}$  drachms, and the physician must see that the patient understands precisely how the injection is made. The ideal medicament is one which will not be irritating to the mucous membrane, but will none the less act as a germicide upon the gonococci. He has tried silver nitrate, argentum, ichthyol, and oxy-cyanate of mercury, but far superior to all these he finds protargol. This contains 8.3 per cent. of silver. It is a chemical combination of silver with proteid and forms a yellowish, fine powder which is readily dissolved by being shaken with water. This solution is not precipitated by dilute sodium chloride or hydrochloric acid, hence it is likely to penetrate deeply into the tissues.

In solutions of one-fourth to one per cent. argonin it is practically not irritating. A continuously acting application can be made, since there is no chemical combination by which the salt is decomposed. Long-continued application is particularly potent. This may be accomplished by single injections which are kept in the urethra for thirty minutes. The method of procedure is as follows:

First, search is made to determine whether gonococci are present, whether they are present in both the posterior and anterior urethra, and whether they are present in threads pressed out of the prostatic follicles. When these latter show gonococci, instillations are used. Injections are repeated thrice daily after urination. Twice the liquid is

kept in the urethra for five minutes, the third time for thirty minutes. The more abundant the secretion the more frequent the injections. Shortly, often in a very few days, these prolonged injections can be discontinued, and finally two of the injections can be made of the ordinary astringents, such as two and a half per cent. suspensions of bismuth or of thioform or of xeroform, employing as a suspension medium water or boric acid solution, or one-fourth-per-cent. zinc sulphate solution or twenty-per-cent. glycerin.

The great convenience of the treatment lies in the fact that the patient is not compelled to keep up the applications for a long period, though it is not the rapidity but the permanence of the cure which should be our aim. Even when gonococci disappear in twenty-four to forty-eight hours the patient should be instructed to continue the prolonged injections once daily for a week.

Microscopic control must be continued throughout, and only after repeatedly negative microscopic findings is the treatment to be abandoned. The physician should be slow in discontinuing his treatment.

In the beginning one-fourth-per-cent. solution should be employed. This should be increased in strength until one-per-cent. concentration is reached. In chronic cases the penetrating effect of protargol is well demonstrated, but it will be usually necessary before cure is accomplished to produce an acute inflammation, preferably by means of argentamin injections from 1:4000 to 1:2000.

As a result of his experience in hospital and private practise Neisser states that he has never had from any other drug such rapid, satisfactory and sure cures.

Goldenberg contributes an article which in the main confirms the favorable opinion of protargol expressed by Neisser. He states that the treatment is absolutely painless and there is no evidence of local irritation. In some cases after the disappearance of the gonococci a slight discharge persisted, which subsided after the conjoined use of astringent injections.

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## Reports on Therapeutic Progress

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### CALOMEL AND ACIDS.

Ever since calomel was introduced into therapeutics classic authors have drawn attention to the minute precautions that its use requires if one wishes to avoid serious results. It is well known that this substance



is unstable. Chemistry teaches that it is easily decomposed upon contact with salts and acids, and is transformed into corrosive sublimate. There are authors who will not admit the truth of this idea. They hold that the cases of poisoning observed are due to idiosyncrasies; others assure us that they have never found sublimate in the digestive tract; others again have the theory of intoxication, and think that the accidents arise from a reaction between calomel and albumen. The dangers that this drug present cannot be contested, as the experiments of Ottolenghi prove. This author has given calomel in therapeutical doses to dogs and compelled them to drink salts and acids. The animals always presented symptoms of intoxication, which appeared with more rapidity and severity than if the calomel had been taken alone. In these experiments the symptoms were not the same as those observed after the ingestion of corrosive sublimate. Ottolenghi affirms that, contrary to the current opinion, calomel is not decomposed in the stomach; in fact, if we place calomel in solutions of salts or acids, no phenomenon will appear if the temperature is no higher than that of the body, 37°C. That which does not take place in the laboratory does not take place in the stomach in those cases to which we refer. The exaggeration of the toxic effect of calomel after the ingestion of salts or acids arises from the fact that its combination with albuminoid substances contained in the stomach will be facilitated and will yield products much more soluble, so that calomel, which is normally absorbed in very small quantities, will pass in much larger amounts into the circulation, thus provoking signs of grave intoxication.—*Medical Record*, Oct. 30, 1897.

#### THE SYMPTOMATIC TREATMENT OF EXOPHTHALMIC GOITRE.

The *Journal des Praticiens* of October 16, 1897, contains an article upon this subject by DEGUY. The most important symptomatic signs to be combated are the cardiac disturbances, which are usually manifested in symptoms of feebleness of this organ. In some of these cases digitalis is a valuable drug, in other cases it fails to do good. It is particularly indicated, according to Huchard, in those instances in which the heart is greatly disturbed in its rhythm and power. In these cases the digitalis exercises a valuable sedative effect and should be given in small doses.

The murmurs which are heard in the heart in many cases of exophthalmic goitre are not to be regarded as valvular affections, but as temporary symptoms of the disease. For the palpitations, which are annoying symptoms, Ging has recommended the application of cold compresses to the præcordium, or in their place atomization by ether or chloride of ethyl or the use of an ice-bag. All of these applications are practically without danger. Care, however, must be taken that they are not so continued as to destroy the integrity of the skin. In some cases strophanthus is better than digitalis. In those instances where there is considerable cardiac pain or pseudo-angina, nitroglycerin is useful. Counter-irritation produced by chloroform compresses is of value. Aconite is also useful in some instances. If albuminuria is present a milk diet should be insisted upon.

Dieulafoy has strongly recommended the following prescription in cases of great eryth-  
rism of the cardio-vascular apparatus:

- ℞ Powdered ipecac, ¼ grain;  
Extract of opium, 1-10 grain;  
Powdered digitalis, ¼ grain.

Make into one pill and give four to six in twenty-four hours.

On the other hand, tincture of veratrum viride, ten drops a day increased to twenty drops progressively, has been recommended by Sée as a valuable remedy, and small quantities of veratrine ointment may be applied over the præcordium with advantage. Another line of treatment is that of Handfield Jones, which, however, is rejected by the author of this paper, namely, the administration of strychnine. Ergot has given good results in some of Huchard's cases, particularly when combined with the hydrobromate of quinine as follows:

- ℞ Hydrobromate of quinine,  
Ergot, of each ¼ drachm.

Make into four pills; give three to six a day.

The best hypnotics for the insomnia are chloral and trional. Arsenic may be given for the general improvement of the patient's nutrition.

#### THE USE OF VINEGAR FOR THE VOMITING PRODUCED BY CHLOROFORM.

*La Médecine Moderne* quotes the observation of LEWIN that out of 174 cases of vomiting following the administration of chloroform he was able to relieve 125 patients by causing them to inhale the fumes of vinegar, the vinegar having previously been placed upon a towel. The method consists in placing a

small piece of linen which has been wet with vinegar over the face of the patient for a number of hours, after the chloroform mask has been removed. If the vomiting returns after this treatment is stopped a renewal of it will be sufficient to check the relapse.

Lewin believes that in the elimination of chloroform from the lung it is decomposed into hydrochloric acid and chlorine and that these irritating substances are responsible for the attack of vomiting, and that the inhalation of the vapor of the vinegar produces trichloroacetic acid, which does not produce vomiting.

#### LACTIC ACID IN A CASE OF ARTHRITIS DEFORMANS.

ZOLOTAVINE (*La Médecine Moderne*, Sept. 18, 1897) used lactic acid with success in an old case of arthritis deformans, administering daily ten drops of this drug upon an empty stomach, and allowing no food for an hour and a half afterward. The disease had lasted for ten years, and for a year the patient had not been able to leave her bed. The dose of the medicine was gradually increased to forty drops daily. At the end of three weeks the action of the acid was manifest; the articular pains were so relieved that the woman was able to get out of bed and walk a little; the circumference of the joints diminished slightly; nutrition improved and abdominal pains disappeared. No other medicine was used, and the only external treatment was a light massage. Improvement continued until the patient, at the time of writing, could walk without a cane and attend to her ordinary occupations. — *Medical News*, Oct. 30, 1897.

#### THE TREATMENT OF UREMIA.

In the *Journal des Praticiens* LE GENDRE recommends the following treatment: In eclamptic accidents we should use inhalations of chloroform and administer chloral and the bromides by injection. The suggestion that antipyrin be employed is not to be carried out, as this substance seems to decrease the urinary secretion. Some practitioners have resorted to compression of the carotid and others have employed hot baths. For the coma of uremia subcutaneous injections of caffeine and ether with inhalations of oxygen are to be employed. The dyspnea is to be combated in different ways, according to its cause. Should it be due to acute edema of the lung multiple scarifications and cuttings of the thorax may be resorted to,

oxygen given by inhalation, and the nitrite of amyl or nitroglycerin is to be administered. Sometimes this form of dyspnea is relieved by the injection of morphine. In the chronic dyspnea of uremia with nightly paroxysms bleeding is not indicated, but morphine is often a useful drug. Should the dyspnea depend upon nervousness of the heart cardiac tonics such as digitalis are valuable. On the other hand, should the dyspnea be mechanical in the sense that it results from hydropericardium or hydrothorax, these cavities must be tapped and the fluid withdrawn, or the condition combated by the use of diuretics.

In regard to the incoercible vomiting small pieces of ice, sips of seltzer water or frozen champagne, one or two drops of creosote or of the tincture of iodine in a spoonful of water may be useful, and oxygen water, chloroform water, or small doses of lactic acid or copious draughts of hot drinks may be used. In other instances lavage of the stomach is of value, particularly if the vomited material is ammoniacal, showing the elimination of urea into this viscus. In this condition Frerichs has recommended the use of chlorine water or benzoic acid. Should violent diarrhea exert itself it is to be controlled by large doses of bismuth, chalk, lactic acid, and nitrate of silver in pills.

#### THE TREATMENT OF APHTHOUS STOMATITIS.

The local treatment consists in the application to the mouth five or six times a day of any one of the following solutions:

- ℞ Borax, 1 drachm;  
Tincture of myrrh, 2 drachms;  
Syrup of mulberry, 2 ounces.
- ℞ Borax, 1 drachm;  
Tincture of benzoin, ¼ drachm;  
Distilled water, 3 drachms;  
Simple syrup, 6 drachms.
- ℞ Phosphate of sodium, 2½ drachms;  
Orange-flower water, 1 ounce;  
Honey, 1½ ounces.
- ℞ Salicylic acid, 30 grains;  
Alcohol, 3 drachms;  
Glycerin, 6 drachms.

If the case is a grave one it may be wise in addition to order the following prescription for internal use:

- ℞ Chlorate of potassium, 15 grains;  
Distilled water, 3 ounces;  
Syrup of raspberry, 2½ drachms.
- A teaspoonful every two hours.

—*Journal des Praticiens*.

### ACCIDENTS DUE TO THE EMPLOYMENT OF ANTIPYRIN.

The *Gazette Hebdomadaire de Médecine et de Chirurgie* of September 26, 1897, contains an article on this subject in which the writer refers to a thesis by M. V. Clement which, he says, is particularly instructive. The author devotes considerable space to the nature of the accidents which follow the immoderate use of antipyrin, giving a detailed account of those pertaining to the skin, the viscera, the nervous system, and the circulation, from which the following practical conclusions are reached:

1. Antipyrin should never be prescribed for very old people, for subjects attacked with non-compensated cardiac lesions, or for those in an adynamic condition.

2. In influenza and erysipelas it should always be associated with quinine and, in convalescence, with strychnine or caffeine.

3. In arthritic subjects, who are nearly always dyspeptics, it should be associated with an alkali (sodium bicarbonate or sodium benzoate) and prescribed in solution. If it cannot be taken except in a capsule, the patient should drink a quarter or half a glass of Vichy immediately after taking the capsule.

4. In tuberculous subjects twelve grains at a time should not be exceeded, and the condition of defervescence should be carefully watched. It is well in these cases to combine alcohol and antipyrin and give the latter in solution.

5. In diabetic subjects the association with alkalies is obligatory.

6. In children antipyrin may be administered without inconvenience even in amounts proportionately larger than in adults, provided it is given in divided doses. This tolerance depends as much upon the integrity of the renal functions as upon the mode of administration, which should nearly always be by the solution.

The writer calls attention to the fact that antipyrin given in powder, sometimes even in solution, has a special effect upon the mucous membrane of the stomach, and that this may be avoided by employing hypodermic injections. An injection done aseptically never gives place even to the least cutaneous disturbance.

The treatment of these accidents consists, naturally, in suspending the use of the drug. For the cutaneous accidents simple measures are generally sufficient. If it is a serious case of poisoning, injections of ether and

especially of caffeine should be resorted to. During convalescence alcohol, digitalis, strychnine, and small doses of quinine render great service.—*New York Medical Journal*, Oct. 30, 1897.

### THE THERAPEUTIC EFFECT OF ARTIFICIAL HYPEREMIA.

BIER (*Münchener Medicinische Wochenschrift*, 1897, No. 32), who for some years has advocated artificial hyperemia as a successful method of treating tuberculous joints, has tried its effect in other diseases. Syphilitic foci of disease invariably were affected for the worse, and the growth of two sarcomata was rapidly increased. In gonorrheal articular rheumatism artificial hyperemia was almost always of marked benefit, but in acute articular rheumatism the results were variable. In chronic rheumatism and arthritis deformans the results were unequal, but generally very good.—*British Medical Journal*, Oct. 23, 1897.

### THE USE OF CALOMEL INJECTIONS IN LUPUS.

In *La Presse Médicale Belge*, HASSELBERG records his experience in the treatment of lupus with calomel injections in four cases, and he believes that this method of treatment is destined to produce great results in the treatment of this troublesome cutaneous affection. The number of injections usually vary from three to twenty-five or thirty, but unfortunately no statement is made in the article as to the quantity of calomel injected at each dose; neither is there any definite statement as to the part of the body in which the injection was made.

The method of treatment is recommended in those cases which will not submit to or are not suitable for surgical interference.

### THE TREATMENT OF HEMOPHILIA WITH CHLORIDE OF CALCIUM.

Physiologists have known for some time that lime salts play an essential part in the coagulation of the blood. This suggested to Dr. A. E. Wright the possibility of artificially increasing the power of coagulation. He made some valuable researches and showed that the administration of chloride of calcium caused a considerable increase. He found that in hemophilia the coagulation time could be reduced about one-half. He therefore suggested the use of this salt in the treat-

ment of hemophilia and other diseases attended with recurrent hemorrhages. His conclusions have been fully confirmed by the results, especially in the case of hemophilia, where they are even brilliant. But the value of the treatment appears still to be but little recognized. The following case, published by Dr. Clifford Perry, and abstracted in a recent number of the *Revue des Sciences Médicales*, is very definite evidence: Severe hemorrhage followed incision of a dental abscess in a case of hemophilia. Only after four hours' energetic work, and packing the whole space between the alveolar process and the cheek with gauze saturated with strong solution of perchloride of iron, did the hemorrhage cease. Later epistaxis and recurrence of hemorrhage from the wound took place, which ceased when the patient was on the verge of collapse. After six hours alarming hemorrhage again occurred, which all ordinary means failed to stop. Chloride of calcium was given in doses of two grains every four hours. In a few hours the effect was marked; a firm clot formed and the hemorrhage ceased.

#### THE TREATMENT OF LEG ULCERS.

The following treatment is suggested by the *Journal des Praticiens* of July 3, 1897: After rendering the surface of the ulcer antiseptic it is cauterized with nitrate of silver, followed by the application of boric acid. If this does not produce improvement the following ointment is applied daily:

- ℞ Carbolic acid, 30 minims;
- Boric acid, 2½ drachms;
- Powdered camphor, 2 drachms;
- Ichthyol, 5 drachms;
- Oil of sweet almonds, 2 drachms;
- Zinc ointment, 3 ounces.

#### THE EFFECTS OF RESISTANCE EXERCISE UPON THE CIRCULATION IN MAN, LOCAL AND GENERAL.

In the *British Medical Journal* of October 16, 1897, BRUNTON and TUNNICLIFFE record a study of the effects of resistance exercise. The conclusions which they are able to formulate from their experiments fall under two heads: (1) Physiological; (2) Medical.

1. Physiological: (a) Locally, gentle exercise is followed by a dilatation of the muscular arterioles with an increased flow of blood through them. This is shown by the fact that after the contraction is over the pulsations in the muscle have a greater amplitude—that is, there is a greater distance

between the crest and hollow of each pulse wave than before the contraction. As these alterations in the circulation are purely local, the heart remaining the same, they can only be due to a local dilatation of the arterioles in the muscle, allowing them to empty themselves more rapidly during the cardiac diastole. (b) Generally, the effect of exercise so gentle as to cause no hurry in the respiration and no increased frequency in the pulse on the general blood-pressure is that during the exercise itself the pressure first rises above the normal, but begins to fall, even during the continuance of the exercise; continues to fall, so that at the end of the exercise it has usually reached the normal. After cessation of the exercise the pressure continues to fall. The pressure after the exercise may remain subnormal for half an hour or longer; after the expiration of this time it gradually rises again to its initial height.

These results may at first sight appear to differ from those of Oertel, who found that a rise in general blood-pressure invariably followed muscular exercise. The authors believe that the difference between his results and theirs depends upon the amount of exercise taken being different in the two cases. In his experiments the amount of exercise was sufficiently great to cause considerable strain. In one case, for example, the exercise consisted in making an ascent in forty minutes for which an hour was usually reckoned. Although he notes that no difficulty in breathing occurred, yet the respiration must certainly have been quickened.

If we compare the results of the author's experiments just mentioned with those which Brunton and Tunnicliffe found to follow massage, we notice that the primary rise of blood-pressure upon exertion is greater than that caused by massage, but that the subsequent fall is both greater and of longer duration.

2. General medical conclusions: (a) In cases where the heart is very feeble, so that the primary rise of blood-pressure caused by even gentle exercise may interfere with its action, massage is the mode of treatment best adapted for restoring the circulation. (b) That when the heart is sufficiently strong to bear the increased resistance presented to it by the primary rise of pressure occurring during exercise, gentle exercise is preferable to massage, inasmuch as the subsequent diminution of resistance is greater in amount and of longer duration. (c) The difference between their results and those of Oertel

affords a scientific basis for the practical rule which has been found so advantageous at Nauheim, namely, that the exercises shall not be carried to such an extent as to cause any acceleration of breathing on the part of the patient.

#### THE PREVENTION OF IODOFORM IN-TOXICATION.

SASSE is quoted by *Journal des Praticiens* of October 16, 1897, as recommending the following means of demonstrating in time a threatened iodoform intoxication, a condition which is not rare in surgical and gynecological practise. A test is made of the urine to note the quantity of iodine which is eliminated by it. A small pinch of powdered calomel is placed upon a saucer, and then a few drops of the urine to be examined is dropped upon it; a mixture of the urine and calomel is then made with a glass rod. If the urine contains a notable amount of iodine there is produced a well marked yellow discoloration, which should indicate that the iodoform is being absorbed in sufficient quantity to produce danger.

#### ADMINISTRATION OF ANESTHETICS THROUGH A TRACHEAL WOUND.

In the London *Lancet* of November 6, 1897, THOMAS ANNANDALE recalls the fact that in March, 1897, he published in the *Edinburgh Medical Journal* a short paper upon "Preliminary Tracheotomy as an Aid to Certain Operations." In this communication the writer has described and figured a simple appliance for keeping a patient under the influence of chloroform or ether in connection with operations which necessitated a previous tracheotomy. Since then he has used this appliance from time to time with success, but having found that the india-rubber tube connected to the tracheotomy tube was sometimes apt to get twisted at its point of connection and so interfere with respiration, and also that matters coughed up were not readily expelled through the long tube, he has had his apparatus improved so as to lessen these risks. This modified appliance was recently employed with perfect success in a case of excision of the entire larynx and portion of the trachea, together with a large and vascular thyroid tumor, the patient being now quite convalescent.

This improved apparatus is as follows: (1) An ordinary full-sized silver tracheotomy tube having its upper end extended for about

half an inch beyond the shield. (2) A silver cap, having a short tube of the same metal projecting at right angles from it and to which one end of an india-rubber tube is connected. The cap fits easily on the tracheotomy tube and is also turned around so as to allow the attached india-rubber tube to project on either side, whichever may be found most convenient for the administration of the anesthetic. (3) A portion of the india-rubber tubing; the length of this should be about two feet, but it may be used shorter or even a little longer. The diameter the author prefers is about half an inch. (4) An ordinary glass tumbler or other similar receptacle with a small piece of lint or absorbent wool placed at the bottom, upon which the chloroform or ether is from time to time sprinkled.

The writer prefers chloroform, but whatever anesthetic is used may in the first instance be held over the tracheotomy tube with the cap off, and when the time for the operation has come the cap with attached india-rubber tube is put on and the anesthetic inhaled from the tumbler, the anesthetist standing or, if he prefers, sitting well away from the operating table, holding the tumbler in one hand. For preventing saliva, blood or vomited matters passing into the air-passages during the operation the introduction of a piece of sponge or other plug into the trachea above the tracheotomy wound is usually satisfactory, but in the case of the excision of the entire larynx already referred to he has adopted a thoroughly effective and as far as he knows original method, and he is inclined to think that this plan may be used in other cases. The procedure was to pass round the trachea immediately above the tracheotomy wound an india-rubber cord and by means of it to ligature the canal temporarily so as completely to prevent the entrance of any fluids or other matters into the air-passages. When the ligature was removed at the completion of the operation above referred to, the walls of the trachea did not appear to have been injured by it. It is true that the condition of the tracheal rings in some instances might prevent such a ligature being perfectly effectual, but the writer is of opinion that this means of temporarily closing the trachea is worthy of consideration and trial.

The advantages, then, claimed for the appliance which the author speaks of are: (1) It is simple and at the same time effectual. (2) The cap being movable can if necessary

be at once disconnected from the tracheotomy tube, so as to allow mucus or other matters to be more easily expelled from the air-passages; this mobility also allows the cap and connected india-rubber tube to be turned round to either side. (3) It allows the anesthetic to be administered at some distance from the patient, and so does not interfere with the operative procedure. (4) The anesthetic when inhaled through the long tube is not likely to be so irritating to the air-passages as when it is more directly inhaled through the tracheotomy tube itself.

#### THE PREPARATION OF DIPHTHERIA ANTITOXIN.

A. T. BAZIN, in an article on the preparation of diphtheria antitoxin in the *British Medical Journal* of December 11, 1897, speaks of its use in treatment and thinks that he ought, while considering the effect of antitoxin on the local lesion, to refer to the employment of local treatment. The writer thinks it wise to condemn the practise of entirely withholding local treatment and trusting all to the antitoxin. It is simply a plan of counteracting the ravages of the Klebs-Loeffler bacillus, and trusting to a kind providence that streptococci and other pus organisms will not be absorbed from a highly absorptive surface in a state of impaired vitality. The course is not rational; as well treat a case of tertiary syphilitic ulceration with potassium iodide and neglect to cleanse the ulcers and treat the surrounding cellulitis. On the other hand, too rigorous local treatment is to be deplored. It smacks of the days of pepper, sulphur, lactic acid, and strong hydrogen peroxide. A median course which supplies a gently cleansing solution to the inflamed part is one to be recommended.

The depression so marked in diphtheria is replaced in one or two days by a feeling of well-being which is surprising. This is a most certain index of the effectiveness of the dose. Antitoxin also prevents the anemia so constantly caused by diphtheria, both by antagonizing this effect of the toxin and by shortening the disease. Convalescence is, therefore, very rapid.

The effect on the temperature is twofold: first, there is a reactionary rise of  $0.5^{\circ}$  to  $3^{\circ}$  F., followed in from four to six hours by a drop to or almost to normal, and, if the dose has been sufficiently large, a normal course thereafter. This condition is not constant,

but is the common one. If the dose has not been sufficient, the temperature will evince a tendency to rise to or above the level existing previous to the administration of the antitoxin.

The effect on the pulse is irregular. To a large extent the pulse, in rate and volume, responds to variations in the temperature. After twelve hours have elapsed from the time of injection a sudden change in cardiac action could hardly be attributed to the antitoxin.

The dosage followed by the author is that advocated by the American Pediatric Society: In cases of ordinary severity, children under one year 500 units; older children and adults, 1000 to 2000 units. In cases of increased severity, including laryngeal cases—and the author wishes to emphasize, nasal diphtheria—children under one year 1000 to 1500 units; older children and adults, 2000 to 3000 units.

If the lapse of eight to twelve hours have not brought about an amelioration of the symptoms, these doses should be repeated, and, if necessary, a third dose should be administered after a similar interval. It is better to be sure than sorry and therefore to err on the right side. With the use of concentrated serum where the effect is so rapidly seen and judged of, the same results may be obtained with somewhat smaller doses. But the physician must constantly be on the watch for apparently mild cases which are deceptive, and in these cases to administer the antitoxin with lavish hand. The importance of the early administration of the remedy cannot be too greatly emphasized; as the serum is innocuous it is not necessary—more, it is foolhardy—to wait for a bacteriological confirmation of the diagnosis. Clinical diagnosis, even “clinical suspicion,” to coin a term, is sufficient to warrant the injection of the serum, and then let the bacteriological examination be made rather to confirm the degree as to the necessity of continued isolation of the patient, and the immunization of those exposed.

There is a further use of antitoxic serum which the author alludes to, and one which is too often neglected at the present time—that of immunization of persons exposed to the contagion of diphtheria. The happy results obtained in hospitals and institutions for the care of children sufficiently recommend the procedure. To Dr. Hermann Biggs is especially due the credit of pursuing and investigating this branch of the antitoxin treatment, and in his article which appeared

in the *Medical News* of November 30, 1893, he points out that 50 to 300 units, dependent upon the size of the patient, should be given, and that the immunity thus conferred continues to be effective for a minimum period of thirty days.

Even to children suffering from other maladies, both acute and chronic, the immunizing dose is harmless, as in December, 1896, Bazin immunized nineteen children in a ward of the Montreal General Hospital and not a single disturbance of temperature or general condition could be detected. The contagion was conveyed to the ward by a case of conjunctival diphtheria and one other child became infected. On the following day all the inmates of the ward received an injection of antitoxin and no further cases developed.

#### THE ACTION OF THE ALKALOIDS OF OPIUM UPON PERISTALTIC MOTION.

After a careful review and discussion of the results obtained by other investigators V. VAMOSSY (*Rev. de Thérap.*, Aug. 15, 1897) describes in detail the method which he employed in arriving at the following conclusions in regard to the question: What is the cause which gives to opium a greater inhibitory action on the peristaltic motion of the intestines than morphine?

1. Morphine injected in the venous circulation has the power by its centric action to hinder the action transmitted by the pneumogastric to the centers, that its centripetal action is not transmitted by the centrifugal route to the intestine and does not provoke contractions.

2. Local injections of morphine into the intestines showed that the excitability and conductivity of the nervous system of the intestine undergoes a considerable diminution as the result of the local irritation.

3. The excitations which pass by the centrifugal motor channels to reach the intestinal wall encounter the terminal nerve fibers and ganglions in a state of narcosis.

4. Narcotine acts but slightly as an inhibitor of reflex excitability in the intestinal wall, and possesses no inhibitory action upon peristalsis.

5. Papaverine resembles morphine more closely in its action upon peristalsis, but its action is too unstable.

6. Thebaine augments intestinal excitability and provokes in consequence an intense peristalsis.

7. It can be no longer held that narceine acts in opium as an augments of inhibition to peristalsis in a manner similar to morphine.

8. Codeine exaggerates the intestinal excitability.

9. Cryptopinine and laudanine also act as augments of intestinal excitability.

As the result of his study the author concludes that opium does not owe its favorable influence upon the intestine to the presence of the accessory alkaloids which it contains.

#### MANGANESE BINOXIDE.

In the *Georgia Journal of Medicine and Surgery* for January, 1898, A. H. SMITH tells us that, in his opinion, among medicines having a specific action there is none which has given him more satisfaction than the bin-oxide of manganese. For many years he has prescribed it constantly for functional derangements of the uterus, and with a smaller percentage of failures than from any other drug with which he is acquainted. It has been equally serviceable when the menses were too profuse and when they were too scanty; when the interval between the periods was too short, and when it was too long. In this respect there is no other term that describes its action as the word "corrective." In the absence of organic disease it seems to have the power, in a great many cases, of bringing the menstrual function back to the normal standard in whatever direction the deviation from that standard may have been. Again and again the writer has seen an habitual interval of three weeks lengthened to the normal twenty-eight days, or a usual duration of eight days, for example, reduced to four or five. On the other hand, irregular or abnormally long intervals have been brought to regular four-weekly periods, and a scanty flow to a satisfactory quantity.

In painful menstruation not dependent upon anatomical conditions the writer has come to rely with great confidence upon the relief to be obtained from the bin-oxide. Beginning about four days before the expected period, and continuing until the flow is fully established, it will generally give a measure of relief for that time. It may, however, seem to be of little or no benefit on the first occasion, but if repeated for the next month an amelioration may be quite confidently predicted, and by perseverance during three or four periods complete and permanent relief is usually obtained.

The headache of a burning character, and limited to the vertex, which so frequently has a uterine origin, is often promptly relieved by two or three doses of the drug, administered at intervals of two or three hours, and this even when it occurs during the intervals of menstruation.

Finally, in the only instance in which he has employed the binocide for this purpose it gives decided relief to the hot flashes attending the menopause. If the patient takes a pill of two grains at bedtime, she passes a fairly comfortable night, whereas if the pill is omitted she wakes half a dozen times to find herself dripping with perspiration. The author has heretofore depended upon one of the nitrites in such cases, but there are persons who cannot bear them even in the smallest doses, and in such cases he intends to make trial of the manganese.

The author's experience with the drug convinces him that it controls in a marked degree the nervous disturbance emanating from the uterus. The effect is often too prompt to be attributable to a merely tonic action upon the general system, and he is forced to believe that it has a peculiar specific relation to the parts involved.

The dose is two grains three times a day, but as it is absolutely without unpleasant effects, it may be given in much larger quantity and at much shorter intervals. For its effect upon the periods it should be given for three or four days before the expected time and continued nearly or quite through the period, this being repeated for several consecutive months.

#### INTRAVENOUS INJECTIONS OF ARSENIC IN THE TREATMENT OF PSORIASIS.

HERXHEIMER (*La Semaine Médicale*, clxii, 1897) has employed these injections in twenty-eight cases, in twenty-five of which no other treatment was adopted. Of these twenty-five, ten were completely cured, six left the hospital much relieved, and nine were reported as still under treatment, all greatly improved, and three nearly cured. The commencing dose is one milligramme of arsenous acid, and this is increased daily by one milligramme up to fifteen milligrammes, the maximum dose, which is repeated daily till the eruption disappears, generally at the end of six or seven weeks. At the end of the first or beginning of the second week the patches become darker in color, and there is a more abundant production of scales; the eruption

then fades and disappears, the pigmentation occasionally persisting. The injections are generally well supported. Arsenical zona and diarrhea were met with in a fortnight in two cases, and a venous thrombosis, cured in a fortnight by rest of the affected limb, occurred in a third; slight thrombosis also occurred in another case.

The following is the method of procedure: After disinfection of the skin by soap, turpentine, ether, and sublimate, and the application of an Esmarch bandage above the elbow to render the veins prominent, the needle of a Pravaz syringe is introduced as nearly parallel to the skin as possible, and its penetration of the vein ascertained by withdrawing the piston. After the injection of one cubic centimeter of a limpid solution of arsenic of the desired strength, the wound is closed with oxide of zinc plaster. — *British Medical Journal*, Oct. 23, 1897.

#### THE DANGERS OF ARTIFICIAL RESPIRATION.

A. BROSC (*Deutsche Archiv für Klinische Medizin*, vol. lviii, p. 605) narrates that a man, aged twenty-two, fourteen days after his discharge from the hospital as convalescent from diphtheria, was seen to get up suddenly from the dinner table, take a few steps towards the door, and fall down. The doctor was called and found the man apparently dead; he nevertheless tried artificial respiration for a long time, but in vain. At the necropsy food was found in the trachea and bronchi, and the uvula and soft palate were edematous.

Was the entry of food into the air-passages during life the cause of death, or was death due to syncope? And did artificial respiration after death cause the entry of some of the gastric contents into the air-passages? To throw light on this question Brosch made a number of experiments on dead bodies. He opened the stomach, put fluid into it, closed up the opening again, and ligatured the pylorus; artificial respiration—Sylvester's method—was found to cause the aspiration of some of the gastric contents into the air-passages. In a control experiment he did not open the stomach, but contented himself with trying the effect of artificial respiration on the natural stomach contents. A similar result was quickly obtained, and the fluid contents of the stomach immediately began to fill the pharynx, flow out of the mouth, and enter the air-passages; the fluid



food was found in the trachea, main bronchi, and all the branches of the main bronchi.

Brosch discusses various methods—preliminary tracheotomy, artificial respiration after the manner of Schüller, Howard, and Marshall Hall—and comes to the conclusion that when there is reason to fear aspiration of gastric contents, the best way to avoid the possible fatal effects of artificial respiration is, before commencing the movements, to introduce an elastic tube into the esophagus. This he thinks will likewise help to prevent the falling back of the tongue. The tube should, however, be sufficiently stiff to avoid its being quite easily pressed flat, in which case its lumen would be obliterated and it would be rendered useless. It should also reach at least fifteen centimeters beyond the pharynx into the esophagus, and ten centimeters of the tube should project from the mouth and the outside end should be weighted down, so that, if any fluid comes out, it will not flow back into the pharynx again.—*British Medical Journal*, Oct. 23, 1897.

#### THE TREATMENT OF THE PUERPERIUM

In the *British Medical Journal* of October 23, 1897, Dr. A. H. WRIGHT gives us a view of the methods and results reached in the lying-in wards of the Toronto General Hospital. He tells us that before vaginal examinations the hands are washed for four minutes in hot water, using soap and a nail-brush; the nails are cleaned with a penknife; and then the hands are washed for two minutes in hot bichloride solution (1 to 2000), using a nail-brush again. The hands are then immersed in hot bichloride solution 1 to 1000 immediately before making an examination; and carbolyzed vaselin is used for a lubricant when required (generally not used). They use an ordinary minute-glass, such as is found in a kitchen for cooking eggs, to govern the time the hands are cleaned. The glass is attached to the wall near the delivery bed. It is reversible and takes six minutes to empty from one side to the other. There are on the glass notches to indicate three and four minutes. At the same time the accoucheur takes off his ordinary coat and puts on a clean white apron. The best apron is one that goes around the body, with sleeves which go to the elbows. Both hands and forearms are bare.

The instruments, forceps, etc., are kept in a boiling solution of carbonate of sodium one-per-cent. for ten minutes before and

after they are used. Glass or rubber catheters are employed, and half a pint of a solution of carbonate of soda is passed through the catheter after it is used, and it is then placed in a bichloride solution, 1:1000.

After labor the vulva is washed with a warm soda solution, then with a bichloride solution, then a powder composed of boric acid and acetanilid is freely applied, and then the vulva is covered with a thin layer of absorbent cotton which has been taken from a bichloride solution. Over this is placed a sterilized absorbent pad.

The patient is prepared for the delivery table by the matron or nurse in accordance with fixed rules, which however are not printed. During labor the vulva is covered with a bichloride pad.

The printed rules and the homely cooking minute-glass were not popular at first. The resident assistants sometimes ignored them or obeyed the directions in a half-hearted way. The two years from 1891 to 1893 were a transitional period during which the rules did little or no good. The results were certainly discouraging, as a death from septicemia occurred in each of these years. Since November, 1893, their results have been better, as they had 500 deliveries without a death from any cause. Excepting in two cases, to which the writer refers again, the patients have gone out well, so far as they can be at that time. In no single instance since November, 1893, has a patient, transferred to another part of the hospital, died from pneumonia or any such disease. It happens that most of those women who died during the nine years were transferred to the General Hospital during illness, but these deaths are included in this record.

Before giving any further particulars as to mortality or morbidity the writer refers to certain details relating to matters which have given much anxious thought. In his private practise he has not used the vaginal douche either before during or after labor as routine practise for fifteen years. When he first commenced work at the hospital eleven years ago, he found certain members of the staff using the vaginal or uterine douche to a considerable extent. This has gradually become less common, until it has almost gone out of fashion. For some time a vaginal douche was given immediately before and after labor, and an intra-uterine douche was given when the temperature went up. During the last two years no douche has been given either before or after labor unless there

seemed to be some special indication for it. When there is evidence of a foul condition of the interior of the uterus causing sapremia, or something worse, the intra-uterine douche is sometimes used. The "rinsing" curette with the douche is employed occasionally. His own preference is to have the patient anesthetized, introduce his hand into the vagina, clean out the interior of the uterus with his finger-tips, and then wash out with a one-per-cent. solution of creolin.

The use of the forceps is discouraged. No resident assistant is allowed to apply the forceps without permission of the medical superintendent or a member of the visiting staff. They have a forceps delivery about once in twenty cases. The patient is generally placed on her back and delivery accomplished by the resident assistant. The forceps used is either the Elliott or the Simpson axis traction. Chloroform or ether is sometimes administered.

Catheterization is considered an evil. The nurse is expected to get along without it. They want no catheter epidemics. They have had no cases of cystitis due to the use of the catheter in 1250 cases recorded. The catheter is used about once in fifty cases (not including catheterizing before operative procedures or in cases of eclampsia). The bedpan is in certain cases placed under the patient and left there for some time, the nurse going to another part of the ward. It frequently happens that the patient is unable to micturate while the nurse is watching her, but does so after she is left alone. The last resource is to administer a copious enema, after which the urine generally comes while the bowels are being evacuated.

The placenta is generally expressed by the modified Cr  d  , or what is commonly known in Canada as the Dublin, method. The uterus is watched for fifteen minutes with the left hand over the fundus. Efforts are then made to squeeze the placenta out by grasping the fundus with thumb and fingers of one hand, or sometimes with two hands. This can generally be better accomplished with the patient on her back. If the placenta cannot be expelled in thirty to forty-five minutes, the hand is introduced into the vagina or uterus and the placenta is extracted. The operator is again expected to thoroughly cleanse his hand before such introduction. In the cases under his care a douche is not administered after such procedure unless some bad symptoms appear.

In the whole number of cases reported

only one instance of mastitis with suppuration occurred; and in this patient it was thought that mastitis existed before labor. The nipples are carefully watched, and if they become sore are washed after the child nurses with a carbolic solution 1 to 40, after which the following is applied, as recommended first by Hirst, of Philadelphia: Castor oil and bismuth subnitrate, equal parts. If the breasts become uncomfortable or painful from distention a binder is carefully applied. They use what is generally known in New York as the "Murphy binder," or the Snively modification of the same. They are now introducing the Y-bandage (Boston Lying-in Hospital), which has been very satisfactory to the writer in private practise in certain cases. Where they wish to prevent the secretion of milk—as, for instance, when the babe is still-born—they depend entirely on the Murphy binder, which is applied rather tightly, generally the day following labor.

Morphine administered hypodermically subdues most quickly the excitability of the nerve centers in convulsions.

Chloral hydrate is the best remedy to prevent recurrence of convulsions after they are to some extent brought under control. It is also sometimes useful as a preventive remedy when the symptoms of toxemia are severe and convulsive seizures are feared, but have not yet appeared. Wright sometimes combines the two remedies for severe convulsions, giving the morphine hypodermically and the chloral by enema. Chloroform sometimes has a good effect on the convulsions, but its administration has frequently disappointed him. There is no doubt that bleeding in properly selected cases has a good effect. We neglect it too much in these modern days. The writer has had but little experience with veratrum viride, and where he has seen it administered has not been favorably impressed with the results. He only mentions pilocarpine to give it an unqualified condemnation, as he considers it both uncertain and dangerous.

The author has not space to discuss the important subject of the induction of abortion or premature labor. He objects strongly to the former (except in extreme cases), and he does not hurriedly resort to the latter. In the 500 patients to which he has specially referred there were twenty-one cases of toxemia, with five of eclampsia. They induced premature labor twice, and assisted labor by digital dilatation of the cervix and the use of forceps in three instances.

*THE TREATMENT OF TUBERCULAR PERITONITIS BY ENEMATA OF COD-LIVER OIL WITH CREOSOTE.*

The great favor in which creosote is now held in the treatment of tuberculous conditions induced THOMAS (*Rev. Méd. de la Suisse Romande*, Nov. 28, 1897) to employ it in enemata of cod-liver oil in the treatment of the peritoneal form of this disease. The results which he has obtained, both in the disappearance of local symptoms and the general improvement in the health of the patient, are very satisfactory and would lead him to believe that a further study of this method, both experimentally and chemically, would be of great benefit.

The treatment consisted in the daily evening employment of an enema made up of an emulsion of 100 grammes of cod-liver oil containing one-half to two grammes (eight to thirty grains) of creosote, according to the age of the patient, with the addition of a few drops of laudanum to produce tolerance.

If the intestine has been previously suitably cleansed, there is no difficulty in retaining the enema, which is for the most part absorbed by the intestine, the amount discharged the following morning decreasing gradually as the treatment progresses.

*SEVERE SYPHILIS TREATED BY THE METALLIC IODINE.*

BOUYEYRON (*Lyon Médical*, No. 2, 1898) points out that iodine does not receive the recognition which its merits justify, due to the fact that it has not been used in sufficient doses and that the prescriptions containing it have not been properly compounded. The excipient should not combine with the iodine, should dissolve it perfectly, should correct its caustic property and its styptic effects, and should inhibit the combination of the iodine with the contents of the alimentary canal. Each dose should be given half an hour before meals. The ideal prescriptions, he holds, are as follows:

- ℞ Metallic iodine, 15 grains;  
Potassium iodide, q. s. ad solution.
- ℞ Neutral glycerin, 1½ to 3 drachms;  
Citric acid, 4 drachms;  
Simple syrup, 2 pints.

A teaspoonful is taken half an hour before meals, twice daily, until six teaspoonfuls a day are administered, or even twice this quantity. In thirty cases, iodism was noted in only two. In one case suffering from gummata of the legs and unable to take

either iodide or mercury, the administration of iodine was followed by cicatrization in fifteen days. The second case, presenting laryngeal pulmonary and cerebral symptoms, all pronounced, persistent, malignant and progressive in spite of ordinary specific treatment, recovered promptly under the iodine. In the third case, presenting tertiaries in the most malignant form, the iodine was equally successful.

*THE CURETTE AFTER ABORTION AND DELIVERY.*

BÖTTNER (*Centralblatt für Gynäkologie*, No. 51, 1897) has observed twenty-eight cases where the operator was Glævecke. He finds that the use of the curette is free from danger if carried out with proper precautions. It permanently stops hemorrhage after abortion or delivery, and as a rule the catamenia return soon, and continue normally, contrary to what is so often seen in mismanaged cases. A skilful use of the curette likewise prevents those morbid changes which are the cause of sterility.—*British Medical Journal*, Jan. 22, 1898.

*THE CELLULOID BANDAGE.*

The *modus operandi* of applying this bandage is as follows: Sheet celluloid is cut into small pieces and dissolved in a close-stoppered bottle in acetone, enough of the fluid being used to rise four times as high in the bottle as the celluloid. This solution of celluloid is rubbed into each layer of the gauze or crinolin bandage or jacket, an ordinary kid glove being worn for the purpose, as the celluloid otherwise dries on the skin and can only be washed off by acetone. For a jacket, at least ten layers are necessary; for a bandage, from four to six layers, according to the strength required. The outer layer is smeared with a coating of celluloid, which forms, when dry, a highly polished surface. It takes three or four hours for a celluloid bandage to dry. That is considerably longer than is the case if plaster of Paris is used. In order to permit of ventilation, small holes may be punctured in the jacket wherever necessary. Surgeons who have experimented with celluloid as a substitute for plaster of Paris in bandages report that the weight of such a bandage is less than one-fourth that of a plaster of Paris one, and less than half that of one stiffened with water glass. It is said to be not very expensive. According to Landerer, a jacket should not cost more

than \$1.50, which is no real objection to its use when one considers that, if well made, it will last for months and presents the further advantage of a smooth surface readily cleansed, and that it is impervious to urine and other discharges.—*Journal of the American Medical Association*, Nov. 20, 1897.

#### SOME CONSIDERATIONS OF ABDOMINAL INCISIONS.

WOOLSEY (*Annals of Surgery*, January, 1898) in studying this subject emphasizes the following conclusions as among those which may be drawn from the above considerations:

1. That abdominal incisions, except those in or close to the median line, should be obliquely transverse in order to parallel the nerves (and thereby also the cleavage lines of the skin), so as to avoid partial paralysis of the muscles, weakness of the abdominal wall, and a tendency to hernia.

2. That intermuscular or even transmuscular incisions should be preferred to those in the linea alba or semilunaris, for in both the latter cases the cicatrix is less strong and more prone to hernia, and in the semilunar line the nerves are necessarily divided.

3. That in place of the median vertical incision near the inner margin of the rectus, the trap-door incision around this inner margin offers many important advantages.

#### THE ELECTRICAL TREATMENT OF URETHRAL STRICTURE.

DEBEDAT (*Arch. d'Elect. Med.*, November, 1897) has introduced a modification of Newman's electrical bougie for which he claims especial advantages. Instead of being wholly metallic, the new instrument is covered with ivory up to its olivary extremity, so that the current passes to the urethra through this part alone. The author uses it in such manner as to produce dilatation without the passage of a current during its introduction, and electrolysis only while in contact with the stricture in the act of withdrawal. The electrical application is thus accurately limited to a small area. Debedat reports the successful use of the bougie in a number of cases, two of which he summarizes. He concludes that electrolysis by this improved method is a truly curative procedure as regards urethral strictures, which are by it attacked alone without injury to the healthy urethra. None of the cases hitherto observed

have called for further surgical treatment. In his opinion, moreover, there is a certain proportion of cases in which electrolysis is the method of election.—*British Medical Journal*, Jan. 22, 1898.

#### FORCED REDUCTION OF LATERAL CURVATURE OF THE SPINE.

NOBLE SMITH (*British Medical Journal*, Jan. 8, 1898), in a paper on this subject, states that the forced reduction of curvatures of the spine, a treatment which during recent months has attracted so much attention, has been chiefly directed to the correction of the deformity in caries, and (as far as this country is concerned) little notice has been taken of its application to cases of lateral curvature. Many cautious surgeons hesitate to run the risk which apparently exists when attempts are made to tear asunder inflamed and ulcerated vertebræ with the object of getting rid of the deformity in caries, but no such risk, the author thinks, appertains to manual force applied to scoliotic spines.

A young man aged seventeen was sent to the author on September 1, 1897, by Dr. W. J. Foster, of Reading. He first began to fail in health at the age of seven, and the spine subsequently gave way. At the age of thirteen he suffered from severe rheumatism. A year ago it was noticed that the right shoulder was projecting backwards. Recumbency was advised, an inefficient apparatus was applied, and the spine had been getting worse ever since. There is a family history of phthisis.

On September 7 the author applied force to the curve. The patient was placed prone upon a couch, the level part of which supported the chest, abdomen, and pelvis, the legs sloping downwards to a foot-rest. The surgeon stood over the patient and applied almost as much pressure as he could exert with his right hand upon the prominent dorsal curve, while with the left hand he supported the patient's shoulder in the contrary direction. The pressure was made downwards as well as to the patient's left, with the object of rotating the spine towards a normal position. In making this movement the ribs on the left side were seen to assume a more natural position, partly filling up the great hollow of that region. The spine was thus considerably straightened. The patient felt sharp pain at the time of pressure, but this went off in a few moments. The surgeon then applied a light apparatus to keep up the improvement produced.

On September 16 the patient reported himself as feeling much better in health, and stated that he could sleep quite comfortably in the appliance. The author again applied force in the same way as before, with the same result—that is, the spine was made distinctly straighter. The following week he again reported himself as feeling much better and stronger, and force was again applied, with a result similar to that following the former treatments.

In making these forced reductions something was heard and felt to give way, like the breaking of adhesions.

This patient was very plucky and was able to bear the operation without an anesthetic, but it is probable that the majority of patients would be more easily dealt with while under the influence of gas or ether.

In estimating the benefits likely to be derived from this method of treatment, the author has found that whatever position can be attained by apparatus can always be reckoned upon to become permanent in the course of time.

#### APPENDICITIS DURING AND AFTER PREGNANCY.

VINAY (*Lyon Médical*, Jan. 2, 1898) records four cases, and in all refers to thirty-two cases. The small number tends to show that pregnancy does not set up torsion of the appendix or colitis, conditions which would increase the virulence of the colon bacillus, and so induce appendicitis. In the thirty-two cases there were ten deaths, a percentage of thirty-one, which is much higher than that of Armstrong in his series of 517 cases, with a mortality of 12.8 per cent. The only complication of importance in appendicitis occurring during pregnancy is abortion, which was noted in forty per cent.; this accounts for the fact that in half the thirty-two cases the children died. This frequency of abortion is much above that seen in other infectious diseases, and is referred to the intimate vascular and lymphatic connections existing between the appendix and the uterine adnexa. Clado described an appendicular ovarian peritoneal fold as being constantly present, and considers that this carries the lymphatics from one to the other. Laforge, however, only finds it in twenty per cent. of bodies examined. In two of Vinay's four cases the appendicitis was primary, but in the other two the appendicitis was due to the spread of infection

from the uterus. In the first there was post-puerperal infection which lighted up old appendicular mischief. The appendix was resected, and the right tube and ovary appeared healthy. In the other case, a primipara with a history of membranous colitis, there was hemorrhagic metritis due to retention of placental tissue, with subsequent appendicitis. The differential diagnosis of appendicitis during pregnancy from tubal gestation on the right side is not difficult, but it is less easy to distinguish it from right salpingitis complicating pregnancy. Appendicitis during pregnancy should be treated like ordinary appendicitis.—*British Medical Journal*, Jan. 22, 1898.

#### ECHINOCOCCUS OF BOTH LUNGS TREATED SURGICALLY.

STEINER (*Centralblatt für Chirurgie*, No. 1, 1898) relates a successful case with very severe symptoms. The heart was much displaced to the right, and when the mouth was opened a buzzing noise was heard synchronous with the cardiac sounds. On puncture of the left side of the thorax posteriorly, fluid containing hooklets was withdrawn. A year and a half before this report Professor Israel opened over a hepatic swelling, incised a large hydatid sac, fixing its edges to the abdominal wound, and then found a second sac behind it; this was opened and the subphrenic space discovered posteriorly. The seventh and eighth left ribs were resected behind, the costal and pulmonary layers of the pleura united by a circle of sutures, and the lung laid open within the circle. A hydatid as big as a normal human bladder was removed, lung immediately filling its place. At once the buzzing noise, caused by pressure of the cyst on the pericardium, disappeared. Six weeks later there was pricking pain and dulness at the right base. On puncture hydatid fluid escaped; dyspnea followed till the patient coughed up much hydatid fluid. Later on chronic bronchopneumonia developed. On recovery it appeared that the echinococcus had atrophied and come away. The patient is now well. Professor Israel noted that the right thorax, which had been treated by nothing more radical than puncture, was somewhat diminished in capacity, whilst the left, where resection and removal of a hydatid had been so successfully undertaken, remained of normal capacity.—*British Medical Journal*, Jan. 22, 1898.

*A PRELIMINARY REPORT UPON THE  
EXAMINATION OF THE BLADDER  
AND THE CATHETERIZATION OF  
THE URETERS IN MEN.*

In the *Annals of Surgery* for January, 1898, HOWARD A. KELLY publishes the following:

When the author first succeeded in his vesical and ureteral examinations in women in the spring of 1893, he expressed a conviction that he has often restated since then, that the bladder in the male could also be investigated in a similar manner, and in all probability the ureters could be catheterized. So positive was his conviction that he had a long, straight, male cystoscope made November 18, 1893.

Much as he desired to do so, it had been impossible for him to test this instrument until quite recently, owing to the excess of his regular professional obligations always crowding him for time, as well as to the fact that such men as did come under his care were private patients, and although suffering with renal diseases in some instances, he was not at liberty to pursue any line of investigation which might justly be called experimental. He also placed an instrument more than two years ago in the hands of his colleague, of the Johns Hopkins Hospital, who used it to examine the bladder in a case through a perineal section; but the instrument was not further tested through the intact urethra owing to the fact that the Casper electric cystoscope was already established in the male genito-urinary department, and its use well understood.

The author succeeded in securing a patient and testing the method of direct examination in the male bladder, through a simple straight speculum and under atmospheric distention induced by posture, for the first time on November 20, 1897, and he owes this opportunity to the courtesy of the surgical staff of the Johns Hopkins Hospital, and particularly to Drs. Harvey W. Cushing and Hugh H. Young.

The patient, a man about forty-eight years old, had a persistent hematuria of undetermined origin. After due antiseptic precautions and washing out of the bladder, it was filled with a saline solution and then examined with the Casper cystoscope. For the most part the bladder-wall was found normal, but at the base a dark, tufted, villous area was found from which a cloud of blood kept rising and mingling with the clear medium. The conclusion was reached that this was probably a vesical papilloma.

The bladder was then emptied with a catheter and the patient placed in the knee-breast position, with the chest close down to the table, the elbows spread apart, and the thighs slightly drawn up under the abdomen. The straight cystoscope, eight millimeters in diameter, and with a tube eighteen centimeters long, with a funnel-shaped opening and a diminutive handle like those attached to his first cystoscopes used in women, was then introduced. This cystoscope, made for him in November, 1893, was inserted into the bladder by Dr. Young without difficulty, while the patient was still in the dorsal position; when he assumed the knee-breast position the obturator was drawn out and air at once entered the bladder. The author attempted to let air into the rectum in order to drop the base of the bladder down more into the plane of vision; but little went in.

The examination of the bladder was now conducted by looking into it through an ordinary head mirror, reflecting an electric light which was held close to the sacrum. The base of the bladder came perfectly into view, and the posterior walls were readily seen. The sound mucosa of the posterior wall showed the characteristic pallor, with small vessels branching out here and there over its surface. We were able to see at once that the base was simply coated with blood which had accumulated there in the most dependent position, and that there was no papilloma or other growth present. The trigone and the interureteric ligament were injected and plainly defined.

The author was enabled to see and to demonstrate the orifice of the left ureter and to introduce into it one of the metal catheters which he uses in women. While the speculum was held up against the ureter, drops of urine trickled out of it down the tube of the speculum, and collected on the edge of the funnel. The urine was claret-colored, demonstrating at once the renal source of the hematuria. He could not introduce one of his long flexible renal catheters into the ureteral orifice, as he was unable to control the end of the catheter through the long, narrow speculum.

The examination was rendered difficult throughout by the insufficient control of the instrument afforded by the small handle; he also found that the tube of the speculum was longer and a little smaller than necessary.

It is a satisfaction to the author to be able to show in this report that his expectations have been realized, and he hopes at a later

date to present a fuller account of the methods of examination, with a description of a variety of better instruments for the purpose of exploring and examining the bladder in men. If we can succeed in doing away with the electric cystoscope by substituting a simple, direct method of examination for an expensive, complicated, and even dangerous instrument, the gain will be great. His direct method of examining also admits of direct methods of treatment. He could, for example, have cut or burned through the pedicle of a papilloma at the base of the bladder with almost the same facility with which he was able to inspect it.

#### THE TREATMENT OF HEMORRHOIDS BY INJECTIONS.

The treatment of hemorrhoids by the injection of carbolic acid and glycerin, mixed in various proportions into the substance of each pile by means of a hypodermic syringe, was first used by American surgeons. S. G. SHALETA, of the Kieff Jewish Hospital, in a reprint from the *South Russian Medical Gazette*, Nos. 18, 19, 20, 21, 22, 23, 24, 1897, has modified this method by using pure liquid carbolic acid, injecting each pile with a Pravaz syringe to a certain degree of fullness, and completing the operation in one sitting. Two, three or four syringefuls of the acid are injected according to the number and size of the tumors. For external piles, he uses a mixture of two parts of pure carbolic acid to one part of a two-per-cent. solution of cocaine. Even if four syringefuls of this mixture are injected the quantity of cocaine is not sufficient to cause dangerous symptoms. As a matter of experience only a few drops should be injected where we have to deal with external piles, the syringe being introduced through the mucous membrane, and not through the skin. The history of sixty-nine cases treated in this way is given, and the results in all cases were highly encouraging. When the piles shriveled up and separated, the surface presented was similar to that produced by the operation for ligature or the clamp and cautery.

The advantages which the author claims for this mode of treatment are: (1) Absence of marked pain during the injections; (2) no necessity for anesthesia (this is a great advantage in old and feeble patients, and those exhausted by repeated hemorrhages); (3) little risk of suppression of urine following this operation; (4) no loss of blood during

the operation; (5) no necessity to keep the bowels quiet for three or four days after the operation, as is the case in other methods of operating.—*British Medical Journal*, Jan. 8, 1898.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A., M.D. OXON., M.R.C.P. LOND.

Influenza has again awakened from its temporary slumbers, and has reasserted itself in a mildly epidemic form in the metropolis. At present it is curiously localized to the outskirts and has not visited central London with any degree of severity. For all our talk of a specific microbe, each year finds us as ignorant of the origin and of the prevention of the pestilence "that stalketh in darkness." This certainly cannot be attributed to any lack of facilities for investigation of the disease, for it has never been completely absent from the metropolis for close upon ten years, and during this period has seldom omitted an annual recrudescence. Even the prevalent belief that its ravages are in some degree favored by mildness of season is a matter of considerable doubt. It is true that most of the epidemic extensions have occurred either in mild winters or in spring, but a notable exception was the severe outbreak in the spell of severe winter which will long be associated with February and March, 1895. However, while we are totally in the dark as to what is influenza and what it is not, we obviously cannot derive any useful information from mortality statistics. In the face of an epidemic of influenza it is impossible to decide how much of the mortality from diseases of the respiratory system is influenzal, and how much is of other catarrhal type. Certainly there is much too great a tendency to lay the whole category to the charge of influenza. Autumn has invariably been the period of greatest immunity, and next to autumn summer. This would suggest a microbe with a maximum fertility at a temperature intermediate between the lower ranges of winter cold and the higher ranges of summer heat. Last week a slight abatement of the death-rate gave a promise of better things, but unfortunately this has not been confirmed by the returns of the present week. Whilst medical

men are at their wits' end for some drug with a semblance of curative power, the lay public are never at a loss for an infallible remedy. This year it is phenol that has cured every one who has consented to try it. For some reason or another the mildly innocuous eucalyptus has never been dethroned from its high position in popular favor. I fancy the charm must be in the manifold modes of administration. It has been offered to me on sugar, on my handkerchief, on sawdust in a saucer, and I have even walked to my bedroom through a grove of eucalyptus trees.

A case of arsenical neuritis shown by Dr. Colman at the Clinical Society of London suggests some points of therapeutic interest. Briefly, the history of the case was as follows: From September 27 to October 28 (with the exception of six days, when the treatment was intermitted because of gastric disturbance) the child took fifteen minims of Fowler's solution three times a day for the cure of chorea. The chorea was cured at the end of that period, and we may charitably assign the cure to the heroic doses of arsenic. On November 10, however, she complained of weakness and tingling of the legs, and in the course of another week distinct foot-drop developed. In December, on readmission to hospital, there was complete paralysis of all the extensor muscles below the knees, with well marked reaction of degeneration. There was no alteration of cutaneous sensibility, but great tenderness of the leg muscles. There was well marked arsenical pigmentation in the neck and groins. By January 14 the child was rapidly recovering, having been kept in bed and treated with massage and electricity. That this was no special idiosyncrasy of the patient was borne out by Dr. Colman's statement that he had seen several such cases before, and other members had had a similar experience. It is interesting to note the period that elapsed between the cessation of the drug and the appearance of the symptoms. The therapeutic value of the case is that it sounds a note of warning against the heroic doses of arsenic, which are incautiously employed in the treatment of chorea. The small experience that I myself have had with these large doses has certainly discouraged me from resorting to them again. In one case a child of seven years was seized with violent colic after the first dose of fifteen minims, and I am half ashamed to admit that her chorea was cured by the single dose. In most cases, however, I have found no benefit from large doses, and much the same

might be said of smaller doses. One wonders how arsenic succeeded in establishing itself as almost a specific for the cure of chorea. Peripheral neuritis is hardly likely to be of common occurrence from the medicinal use of arsenic, because gastric derangements usually indicate that the limits of tolerance have been reached, and lead to remission of its use. The patient in Dr. Colman's case was a girl twelve years of age.

In the *St. Bartholomew's Hospital Journal* Dr. Lauder Brunton discourses pleasantly on the subject of exophthalmic goitre. The main difficulty in rational therapeutics is to disentangle the symptoms which may be due to increased internal secretion from those that are due to primary nervous derangement. We quite agree with Dr. Brunton that the primary cause of the disease must be looked for in the higher central nervous system, but we would rather look in the neighborhood of the centers of emotion than about the medulla, as he suggests. Filehne's experiments on the restiform bodies have long since been discredited by a repetition of these experiments by Ferrier, in which none of the symptoms of exophthalmic goitre ensued. Moreover, the verdict of clinical experience is notoriously in favor of such general measures as promote rest and tranquillity of mind and body, aided by such drugs as restore tone to the disorganized nervous system. Most physicians have exhausted their patience and their repertoire of drugs in the attempt to alleviate some or other of the more obvious symptoms of the disorder, and ultimately fall back on such general remedies as we have indicated. Dr. Brunton speaks with some degree of certainty of the existence of increased secretory activity of the thyroid gland. This is hardly in accordance with what is found in glands that have been removed either by operation or after death. It is true that the secreting surface of the vesicles of the thyroid is very markedly increased, but my own experience of some dozen glands has been that the secreted substance in the vesicles is remarkably diminished; and this has been confirmed by many other observers. Also the injection of thyroid extract into the circulation produces an effect on the heart and vessels exactly opposite to that which we find in exophthalmic goitre. Such injections lower blood-pressure by increasing the calibre of the arteries without any obvious effect upon the heart. Lauder Brunton speaks hopefully of suprarenal extract in the treatment of exophthalmic goitre,



exerting as it does so powerful an influence on muscle tissue in general and particularly on the muscle of the circulatory system. He himself had seen good results from its employment in a single case. Of course in a disease which is so liable as exophthalmic goitre to periods of temporary improvement apart from any treatment, it must needs be fallacious to draw any conclusions from a single case. We have ourselves been signally disappointed in several instances, and we fancy that this is the general experience. All the animal extracts in turn "have their day and cease to be." Thyroid extract was employed for a while by physicians in defiance of their belief in a thyroid toxemia, and now and again recoveries were reported. Then thymus extract was given a trial, accidentally in the first instance, and passed through the same stages of promise and disappointment. Quite recently Dr. Hector Mackenzie has shown pretty conclusively by a tabular statement of results that we can look for little or no assistance from thymus extract. We conclude that suprarenal extract will shortly go the way of its predecessors. There is, however, still in this country a great disinclination to throw the toxemic theory overboard, and as yet no one has been found to attack the cervical sympathetic on the lines laid down by Jaboulay and Abadie.

The Royal Medical and Chirurgical Society has followed up its discussion on the Prevention of Enteric Fever by another discussion on Immunity and Latency after Operations for Reputed Cancer of the Breast, which promises to be of some interest, as most of the leading London surgeons are taking part. The discussion was opened by Mr. Marmaduke Shield, who satisfied his audience (1) that operative interference was justified by the amount of cases in which recovery was complete, and (2) that even by the old so-called "incomplete" operation the results were very much better than was generally supposed. For the rest the discussion drifted very much into an apotheosis of the "incomplete" method by the older surgeons as against the "complete" method—Halsted's operation—as commonly practised by the younger generation of surgeons. Mr. Bryant objected to the term "incomplete" as suggesting some omission on the part of the surgeon. He believed that the mortality from the method of clearing out the axilla and removing the pectoral fascia in every case was greater than that of the more limited method, the operation being too ex-

tensive for old subjects to endure. Whether this be the fact or not, there can be little doubt that such would have been the case prior to the introduction of antiseptics. Mr. Bryant also objected to the completer operation on the ground that recurrence was often not in the axilla nor in the line of the lymphatics; but though this may occasionally be the case, there can be no doubt, as Mr. Watson Cheyne has conclusively shown, that in the large majority of cases recurrence does occur along the routes of lymph flow, and that the best way to prevent this is by removal of the axillary glands, of the pectoral fascia, and more or less of the pectoral muscle. The objection to interference with the pectoral muscle is the subsequent limitation of the movements of the arm, but Mr. Butlin was inclined to attribute this more to the condition of the integument than of the muscle. It is difficult to define what "cure" is. Many of the speakers objected to Volkmann's three-year limit as the test of cure, because recurrences had taken place at greater periods of time. But after all the essential question is the prolongation of the patient's life, and it would be cruel to advise an operation that held out a good prospect of an extended term of years, even in face of the possibility of a later recurrence.

A good deal of discussion has been devoted lately to the dangers and uses of erythrol tetranitrate, which not long since was recommended by Bradbury for relief of the paroxysms of angina pectoris. An accident has recently occurred from the explosive property of the compound. Like other polyatomic organic nitrates, the erythrol tetranitrate detonates when roughly struck, but Bradbury states that it can be rubbed up in a mortar without danger, if ordinary care is used. The melting point of the substance is 142° F., and it does not undergo decomposition at this temperature. To produce explosion, it must be rapidly heated to a much higher temperature. In the case alluded to erythrol tetranitrate was combined with lactose, and Bradbury attributes the accident to its union with a readily oxidizable substance. Martindale has supplied a good deal of useful information as to the pharmacy of the drug. He found that it could be readily exploded by striking it after heating it to 130° F. Like nitroglycerin, it is soluble in fats and oils, and for the preparation of tabloids a stable solution could be obtained in the fat of chocolate. Neutral fats and oils when gently

warmed dissolve one-fourth of their weight of erythrol tetranitrate, but on cooling some of the substance crystallizes out. The chocolate tabloids do not detonate, as the fatty coating appears to act as a protective, and if an excess of fat be used, they can safely carry a considerable amount of the crystals. Martindale summarizes in a letter to the *British Medical Journal* the conditions in pharmacy that render the tetranitrate more explosive as follows: (1) He finds that if a little be heated on platinum foil it deflagrates with a flicker; (2) a trace triturated violently in a porcelain mortar does cause slight explosions; (3) mixed with a little lactose he could not explode it by striking it with a hammer at ordinary temperatures, or even after moistening the mixture with spirit; (4) a trace of an oxidizing agent such as silver oxide, mercuric oxide, potassium permanganate, potassium chlorate, or potassium nitrate, as well as reducing agents such as reduced iron, charcoal, hypophosphites, pyrogallol, morphine, and creosote, all seemed to render erythrol tetranitrate more explosive by concussion.

Abundant evidence of the therapeutic efficacy of the drug is forthcoming; indeed, in some cases it appears to be more persistently effective than nitroglycerin. The tabloids are more or less pungent to the tongue. The moral of the unfortunate accident is to deal gently with preparations of erythrol tetranitrate.

In the January number of the *Practitioner* there will be found some useful remarks by Sir William Broadbent on the Treatment of Dilatation of the Stomach. When the stomach tube is used, as it always should be when there is such accumulation of contents as to lead to copious vomiting, he suggests that the best time for using it is the evening, as it helps to secure a night's rest. Beyond the usual dietary restrictions for the relief of gastric distention, he recommends a tumblerful of hot or cold water night and morning, and half an hour before the principal meal. The hot water seems to stimulate the muscular coat of the stomach to contract so as to expel the gases that stagnate and passively distend the stomach. He finds the most suitable beverage in many cases one or two tablespoonfuls of brandy or whiskey in a claret glass of hot water towards the end of lunch or dinner. Of drugs for relief of overdistention he highly recommends a combination of sodium bicarbonate 20 grains, sodium sulphocarbolate  $7\frac{1}{2}$  grains, tincture nux vom-

ica  $7\frac{1}{2}$  to 10 minims, with sal volatile, tincture of chloroform, and peppermint water, or other carminative, three times a day, rather nearer the next meal than the last, morning, afternoon, and near bedtime. This he replaces in a few days by an acid tonic with pepsin taken immediately after meals, retaining the evening dose only of the alkaline carminative. As the dilatation yields to treatment, measures should be set in train to deal with the catarrhal condition of the mucosa, or the atony of the muscular coat that has been the cause of the overdistention. When the atony is part of a general neurasthenic condition he advises a pill containing arsenous acid and sulphate of strychnine, one-twenty-fourth grain of each, with extract of calumba, gentian, or anthemis, with papain or pepsin if necessary, and rhubarb or aloin if constipation is present. Treatment of gastric dilatation may often be conveniently initiated by moderate purgation with calomel or blue pill combined with colocynth or rhubarb.

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#### BERLIN LETTER.

By JAMES J. WALSH, PH.D., M.D.

The most interesting thing in therapeutics in Berlin for some time was the announcement that a department for the treatment of rabies by the Pasteur method was to be added to the Institute for Infectious Diseases here. Medical sentiment generally at Berlin, under the lead of Professor Koch and his school, has always looked with disfavor on the Pasteur treatment. The rest of Germany takes its cue, to a great extent at least, from here, and so while the English had come to acknowledge the value of the treatment, and the Italians had taken it up, and finally the Russians were enthusiastic over it, medical opinion this side of the Rhine would not listen to it at all.

It is the late International Congress, or rather their visit to the Russian institutions, that seems to have finally convinced the Germans that they were perhaps obstinately opposing a great therapeutic method. The discovery and development of the treatment of rabies by the injection of the desiccated spinal cords of rabbits, in whom the disease has been produced by inoculation, is absolutely empiric. It is absolute empiricism, too, in that domain where self-deception, if we are to read medical history aright, is easiest—the realm of applied therapeutics. No wonder that the carefully scientific Koch, and

the long since therapeutically disillusioned German medical mind, should have opposed. But the wonderful intuition of the genius of Pasteur seems to have led him aright through even the uncertain mazes that lead to a new biological therapeutic method.

The Russian statistics in the matter seem to prove beyond a doubt the efficacy of the treatment. They are the most favorably situated for observations, since lyssa is endemic among the wolves of the vast plains of the south—the Russian steppes. Their bite gives rise to the most virulent and rapidly fatal form of the disease. Their well known habit of jumping at the face of their victims gives the most fatal form of hydrophobia known; the richness of the lymphatic absorbents here, and the closeness of the nerve centers, where the virus of the disease is known to be reproduced, constitute most unfavorable factors for the prognosis of these cases. Yet it is from such cases that the Russians have gathered their favorable statistics.

The department for the Pasteur treatment here is said to be only experimental as yet; an appropriation of only about \$1000 is made for it. It is clear, however, that the principle of the treatment is admitted and its importance acknowledged. A corresponding revolution in medical opinion can be looked for now confidently throughout Germany and among those for whom German medical thought is the only representative of what is best in medicine. This will include, I suppose, a number of American skeptics as to the Pasteur method.

Professor Heubner, the distinguished professor of children's diseases here, said some interesting things in a talk on the serum therapy of diphtheria the other day. The children's wards at the Charité, like most of the rest of the old hospital, are extremely unhygienic. They were never meant for modern medical methods at all. Perfect segregation is almost impossible owing to the arrangement of the buildings. As might be expected, children's diseases easily became epidemic. Diphtheria contracted in the hospital was of rather frequent occurrence. Some time ago Professor Heubner began to give prophylactic injections of diphtheria serum to all the children under his care, for the purpose of keeping them immune to the disease. This was continued for nearly six months, with only one suspicious case observed that originated in the house. That had very light symptoms as of an ordinary angina, and though the diphtheria bacillus

was demonstrated by cultures to be present in the throat, Professor Heubner is inclined to think it one of those cases where the almost ubiquity of the diphtheria bacillus allows of its demonstration, though it is not etiologically concerned in the condition under observation; just as, after all, it has been found by such distinguished observers as Raux and Yersin in perfectly normal throats.

After a while objection was made to this wholesale injection of diphtheria serum, because it was unusual and smacked too much, to certain of the more conservative directors, of experimentation upon the little patients. The immunizing injections were accordingly discontinued. In six weeks three cases of undoubted diphtheria had developed in the wards, though needless to say every precaution had been taken to exclude it. Even the conservatives were convinced. The injections were resumed. They have had no diphtheria develop since, though that is months ago.

About 200 antitoxin units are given as an immunizing dose. The immunity conferred lasts, according to Professor Heubner's observations, almost exactly three weeks—twenty-one days being the average in a number of cases observed. The practical development of immunization here was bound up with all the more difficulties, because it is here that the famous Langerhans case occurred. The prophylactic injection of the child of Virchow's assistant was followed by its immediate death. No medical man now considers the serum to have been primarily responsible, but the case threatened to seriously disturb the advance of diphtheria serum therapy for some time. It is still so well remembered in Berlin that few families in private practise will, with a diphtheria case in the family, consent to the immunization of the other children, even though strongly advised to it by their attending physician. Professor Heubner says that he always recommends it now, and has had most excellent results from it. Gradually, he thinks, the prejudice will entirely disappear, as it has already in many families because of the success of immunization.

In Professor Heubner's clinic children with measles are always given an immunizing injection of diphtheria serum as part of the routine treatment. Since they have begun to do this, they have had none of the disagreeable and often dangerous cases of measles-croup, which occur so often in run down children.

As to the sequelæ and complications of serum treatment here they should be seen very often if anywhere. They are not frequent. Some children have an idiosyncrasy, however, and the injection of animal serum is followed by an urticarial rash. This may appear immediately after the injection, or not for two to three weeks, and is sometimes very obstinate to treatment. As the serum is made stronger—*i.e.*, as a smaller quantity of liquid is made to contain more antitoxic units, and so less and less animal serum has to be injected—these accessory effects of the serum become rarer and may be expected in this way eventually to entirely disappear.

Professor Heubner considers that Behring's expression some time ago, that 600 antitoxic units would be sufficient for any case, does not hold for very severe cases. Here they inject at least 3000 antitoxic units where lesser amounts fail to give relief in a reasonable time. Larger amounts, too, they have used, but as a rule where 3000 units does no good, higher amounts—6000 to 8000 units—also fail. Cells are so paralyzed in their functional activity by the amount of toxins present in such cases that even when these are neutralized by the antitoxin, the cells fail to regain their *quondam* function.

In the cases where the disease is already four to five days old when the injections are begun, the antitoxin is not the specific that it is when taken earlier, but there is no doubt that it does good. While they formerly saved only twenty-five to thirty per cent. of cases admitted to the hospital on the fifth day of the disease, the mortality of such cases is now not more than thirty per cent. altogether. In all cases other remedies besides antitoxin are used. In severe cases there are two special features in the therapy—the use of potassium iodide, ten to fifteen grains a day (what they consider here a large dose as a resolvent—*i.e.*, a membrane loosener), and sweating. A hot-air bath of three hours is given, followed by one hour's intermission; then three hours more. Professor Heubner considers this very efficient in relieving the system of toxins.

The antipyrin patent expires in July of this year, the limit of German patents being fifteen years and no renewals being allowed. It is thought that this will reduce the price of the drug by more than one-half. In the meantime a number of allied preparations have been made which have attracted considerable attention here. The last of these is pyramidon, and I have heard all of the prom-

inent clinicians at least mention it, while some of them speak very highly of it.

Antipyrin is composed of two groups of atoms, the benzol ring and what Knorr has called the pyrazolon ring. Attempts at substitution in the latter ring have been made which would retain all the effectiveness of antipyrin and yet avoid its depressing effect. In this last preparation (pyramidon) all of the O atoms of the pyrazolon ring are replaced by nitro-methyl groups, giving phenyldimethyl-dimethylamino-pyrazolon. This, it is claimed, owing to the absence of stable O radicals, is especially efficient, while clinically it seems to be but very slightly depressing.

#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

The last two months have been marked by the death of two of the most eminent medical men in Paris—Tarnier and Péan. It would be hard to find two men more dissimilar in their most salient characteristics, Tarnier being essentially a man belonging to the Faculty of Medicine, scrupulous in his professional conduct, while Péan has always been somewhat of a free lance, as is indicated by his having been admitted to the Academy of Medicine only in 1887. Both men, however, owe a part of their reputation to their having invented instruments which are now universally known. Every one has heard of Tarnier's basiotribe, his special forceps, which though more complicated than Levret's is more physiological in its action, and his incubator for prematurely born infants. Péan's name is linked in like manner to hemostatic forceps, and to the various forms of the latter instrument which are used in abdominal surgery.

Péan was born in 1830 of well-to-do parents, his father being a miller of Châteaudun, a small town to the south of Paris. Tradition has it that his father, operated upon by a surgeon in Paris for some slight affection, was so much impressed by the size of the fee required that he then said to his son: "There is money to be made in this; take up medicine!"

Péan worked hard and was named first interne. His masters were Denonvilliers and Nélaton, with whom he stayed two years, and from whom he learned how to operate. While he was prosector of the hospitals, he gave instruction in surgery on the cadaver, and his energy and thoroughness have given

cause to regret that he did not follow up more the purely scientific part of surgery.

Once surgeon of the hospitals, Péan soon began a series of abdominal operations, which until then had been tabooed by the various scientific bodies. It was in 1864 that he performed the first successful ovariectomy in France. There were soon to follow a case of abdominal hysterectomy for fibroma, a splenectomy, and other operations of like nature.

Another point in technique which he applied brilliantly was what was described under the name of "morcellement des tumeurs," and which, applied at first to abdominal operations, was found to be of so much service later in the removal of the uterus by the vagina. Péan operated in a most masterful manner, and his calmness and astonishing rapidity have always been the subject of comment by those who saw him at work. He always wore a dress suit when operating, and it was really impressive to see him remove a tumor where there was much bleeding, and in case of hemorrhage quietly stop the flow of blood with one or two of his fingers.

Péan allowed his internes to operate, and considered them more as assistants than was the case twenty years ago. However, he made it a point to teach them in the first few months all that was necessary to insure their undertaking minor operations with ease.

In 1892, as he was obliged to leave the hospitals on account of his having reached the age limit, he established in the rue de la Santé the International Hospital, where he still kept on operating. He was in good health two weeks ago, but was taken ill rather suddenly with influenza and pneumonia, and died on the 30th of January, showing at the last the greatest calmness and resignation.

In a previous letter an account of the "affaire Laporte" was given, and it was stated that the defendant had been condemned to three months' imprisonment with application of the Béranger law, which consists in suspension of the penalty inflicted by the court until an ulterior condemnation. Pinard, the celebrated accoucheur, has continued his efforts in behalf of Dr. Laporte, and has obtained letters from various representative men in midwifery, which he has had published.

In medical science bacteriology is always prominent, and as usual one or two new bacteria have been studied or analyzed very fully. Dr. Achalme, of Paris, demonstrated

some time ago a bacillus which he discovered in patients suffering from rheumatic fever, and gave various means of differentiating it from other organisms offering the same morphology. Triboulet and Coyne have taken up the subject again and examined a certain number of cases of rheumatic fever with or without complications. They describe an elongated coccus, found in pairs, grouped in chains at times, presenting dimensions varying between 1.5 and 2  $\mu$ . This organism is characterized by its being anaerobic, is easily cultivated in bouillon or ascitic serum, is colored readily by thionine, but is not discolored by the Gram method. They look upon this germ as being the real microbe of rheumatic fever, whereas the bacillus of Achalme is to be found only in complicated cases. Their researches have, however, been criticized, and it has been objected that some varieties of staphylococci give the same reactions.

In an article published in the *Presse Médicale*, a paper recently started in opposition to the *Semaine Médicale*, so long the favorite journal of the medical practitioner in France, Dr. Landouzy, professor of therapeutics at the Faculty of Medicine, compares the relative value of antipyrin and quinine in the treatment of influenza. He begins by observing that the present epidemic of influenza in Paris is characterized by its asthenic and depressing forms, rather than by the painful ones seen in 1890. This special asthenia, which is so much seen, can prove dangerous or even fatal in old people, for instance, but if certain cases have proved more serious than others, it is sometimes due to an ill-timed use of antipyrin. It is unfortunately too true that antipyrin has come to be considered almost a specific in influenza, while it should only be looked upon as a means of alleviating pain. The result is that sometimes as much as two or three grammes of antipyrin are given. It would be unnecessary to call attention to this if this drug were incapable of producing untoward results, but it is only too well known that it depresses the nervous system, lowers the vascular tension, and produces peripheral vaso-dilatation, diminishes the oxidizing qualities of the blood, and by decreasing the blood-tension in the kidneys, lowers the quantity of urine excreted. It is thereby easily understood how pernicious are the effects of antipyrin, and how, far from helping the patient, its action is more or less similar to that of the disease. The moral

of all this is that antipyrin should not be considered as a drug specially indicated in influenza; what is really necessary is to strengthen the patient, to tone up his nervous system, so that alcohol, coffee, quinine, artificial serum are to be used.

Without exaggeration, Dr. Landouzy thinks that there are hardly any therapeutical indications that may not be fulfilled with quinine, the action of which is stimulating, tonic, and anti-infectious. As a conclusion Dr. Landouzy would choose quinine always, and only use antipyrin when obliged to do so.

Attention has been called of late to the use, or rather disuse, of those ancient therapeutic agents, bleeding, emetics, and blisters. Dr. Robin, agrégé at the Faculty of Medicine, speaks highly of them and considers that bleeding is certainly indicated in apoplexy, in some cases of pneumonia, and also where by a sudden depletion a certain quantity of toxins may be removed from the circulation, as in uremia. As for emetics, Dr. Robin has studied their action upon lung capacity, and the results of his investigations tend to show that respiration is notably increased, and the oxidation carried on in the body much more intense. Some care should be taken in the use of emetics with old people, but in certain cases of congestion or bronchitis they are certainly very useful. As for blisters, they would seem to affect the respiratory functions not so much by their chemical composition as by a reflex action leading to more intense muscular action in the respiratory muscles.

In surgery we must mention Dr. Chipault's communication to the Société de Chirurgie on scoliosis. The author considers that this affection should be treated somewhat as Pott's disease has been by Cabot. This treatment consists first of all in reduction by simple means, such as an apparatus for traction and extension, while lateral pressure is brought to bear gradually on the summit and extremities of the deformity. This removal of the deformity can be produced in successive stages or else accomplished forcibly under ether or chloroform narcosis, a course which is not recommended by Chipault. Once the scoliosis has disappeared, a plaster-of-Paris bandage should be applied similar to that used in Pott's disease, fitting well on to the body. In bad cases, various metallic hooks, similar to Malgaigne's hook, can be applied, and by their pressure on the bony projections they prevent a recurrence of the deformity. The result of this treatment would

seem from the author's statements to be most successful, and in Chipault's estimation much to be preferred to the very long and unsatisfactory treatment by gymnastics.

The treatment of burns by picric acid has been the subject of some controversy, and in the discussion which took place at the Société de Chirurgie, the general opinion was that it was no advance on the usual methods. Dr. Walther communicated two reports of poisoning by picric acid in children. Dr. Brun also cited a fatal case.

An uncommon affection which has called forth quite a number of observations, on the subject being communicated, is subphrenic abscess. Two cases were seen last summer by Dr. Courtois-Suffit at the Beaujon Hospital, and operated on by Dr. Lejars in Dr. Theophilus Anger's service. This disease, which used to be well-nigh fatal, offers at present a very much improved prognosis.

Dr. Courtois-Suffit states that the symptoms observed are those that are seen in pus formation, and moreover tympanism in the right epigastric region with tumefaction. This tympanism is replaced by dulness in its lower half, when the patient assumes a sitting position. This affection is caused by perforation of the stomach or duodenum.

The first case was operated on by incision on the right of rectus muscle and subsequent parietal suture, and was drained and washed out at first every other day. The patient recovered. The second case, a woman thirty-nine years old, was also operated on by Dr. Lejars. Though there was improvement the first two days, she died the third day, and on examination an abscess near the spleen communicating with the stomach was found. As to the abscess which had been opened, nothing had occurred to cause death. These abscesses differ from others of the same region by the fact that they are in communication with the stomach, which presents an ulceration. They should be incised freely, and the mortality has thus been much reduced.

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#### ROME LETTER.

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BY A. DILLON CARBERY, M.D.

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With unexceptionable weather and the presence of an unusually large number of visitors, the season in Rome promises to be of the gayest; yet in spite of its attractions and the great sanitary improvements of the last ten years, the city still suffers, unjustly one

would think, from a legendary reputation for unhealthiness which prevents its recognition as an admirable health resort for certain classes of invalids.

We are always glad to note the gradual dissipation of old prejudices, and certainly the legendary unhealthiness of Rome is amongst those superstitions which it would be to the common weal to dispel. A recent publication of the scientific press, namely, Dr. Mendini's Hygienic Guide to Rome, translated and edited by Dr. John J. Eyre, who practises here, is a sparkling retort to the maligners of the Eternal City. So far back as 1870 Baccelli was earnestly laboring to put an end to what he calls "a calumny which struggled not only with truth, but with the divine beauty of our sky." Following in these worthy footsteps Dr. Mendini, by careful reference to sanitary reports and a clever summarizing of mortality returns, meteorological charts and scientific documents of a like nature, establishes the conclusion that Rome is not only healthy, but has undoubted merits as a health resort. Curiously enough, the author in his preface describes this conclusion as altogether unexpected, for the reason that he himself at the outset of his inquiries suffered from the common prejudice that the city was not completely healthy. Referring to this interesting little book, we find that Rome holds the premier place for sanitary merit amongst the cities of Italy, and although it cannot claim superiority over all the other large capitals, it certainly takes precedence of some. Thus, for the ten years 1884 to 1893 the death-rate from all causes in Rome exceeds that of London, Paris, and Berlin, whereas it is lower than that of New York, St. Petersburg, and Vienna. In 1895 the death-rate of the resident population was only 17.3 per 1000. As to the malarial myth, it is disposed of in a word by simple negation. Malarial fever does not exist in Rome. Dr. Mendini admits, indeed, that deaths from malaria do occur in the city, but "The deaths indicated in the statistics all appertain to the agricultural population, who contract the disease in the Pontine marshes and in the other mephitic plains of the Agro Romano, and afterwards are admitted for treatment in the Roman hospitals. Amongst the population resident in the city there is not a single death from malarial fever."

When in imperial times the plebs clamored for bread, the patricians would offer games in the Colosseum and gladiatorial fights as a

palliative; to-day, when the corner in flour maneuvered by the millers has led to riots and disturbances, and the great increase in the price of bread to an excitation of popular feeling which may at any moment lead to serious results, we are gratified here in Rome by a fierce encounter between Professor Celli of the Instituto Igienico and the Belgian Integral Bread Company. Weight against wit—a barbarian against a trained fighter from Urbino. The Belgian firm, offering whole meal bread at a much lower price than the bakers, is doing good business and intends to extend its operations, although established but a few weeks. From the first day of the opening of the bakery Professor Celli had condemned the bread on *a priori* reasons, stating that the antispire principle (which consists in disintegrating the cortex of the grain by a series of spiral knives interlocked) could never render the husk digestible, and that the bread was unwholesome. A violent polemic between the company and the professor was the result, in which the old controversies of whole meal or integral bread were all rehearsed. As a final note Celli published in the *Nuova Antologia* (the Italian "19th Century Review") a vigorous condemnation of the bread, which he described in the words of Vallin, of Paris, as good for dogs only, or vicariously for the constipated. Celli, who is undoubtedly a very earnest sanitarian, and as a deputy in the house is known to have socialistic leanings, explained to me in animated words the reasons for his action. Integral or whole meal bread, he says, is by secular tradition, universal experience, and in the light of modern research, wholly condemned, because, agreeing with Wiche, Menicanti, and Prausswitz, the husk of the grain is absolutely indigestible, as is the substance on the inner surface of the husk. The addition of these extraneous matters to the bread can be of no advantage and, acting as intestinal irritants, must prove harmful to the Italians, eaters of bread and fruit, amongst whom constipation is unknown and who would unquestionably lose much of the value of the food owing to its shorter stay in the digestive tract. Celli is persuaded that white bread is superior as a food to all other farinaceous comestibles, and with the addition to the paste of common salt and an acid phosphate (easily made by the baker) an ideal food is obtained. He further recommends as perfection bread made from a mixture of seventy-three per cent. wheaten flour, twenty-three per cent. flour from Indian

corn, and about four per cent. of flour made from beans. Celli's bread is palatable enough and highly nutritious, but has never been accepted by the proletariat for undefined reasons, possibly from the waywardness of nature that often dislocates useful from agreeable.

There has been of late a recrudescence of the old crusade against foreign medical men practising in Italy. As it stands, the sanitary law permits duly qualified practitioners of other nationalities to exercise their calling here, but only amongst their own countrymen, and it is forbidden to them to render any professional services to Italians. The question is not a new one. Twenty years ago an agitation was on foot to eject the non-Italian physicians, but it produced no practical result. Last spring a deputation of the delegates of the Order of Doctors appealed to the Minister of Public Instruction to formulate a project of law to alter Article 23 of the sanitary law under which hospitality is extended to our profession. To this demand the minister gave but little hope of ultimate satisfaction; and when the matter came before the Superior Council of Health it was deemed inexpedient to alter the statute, having regard to the possible economic loss which the country would sustain owing to a decrease in the influx of foreigners. Matters stood thus when the congress of the delegates of the Order of Doctors met here last October. At the first meeting the question was again raised, Santini, Bossi and others making a vehement attack on the foreign practitioners, whose numbers were stated as being 1500. It was proposed by Bossi that the government should be appealed to to cause a revision of the law in the direction of protecting the native practitioner and putting Italy on the same footing, in this respect, with the Continental powers. It was argued that free trade, though unquestionably beautiful in the abstract, was inferior to protection, where the latter was adopted by all the Continental nations. Some of the orators were more vigorous than academic in their denunciations of the "stranieri," but these were few in number and not from the ranks of the more worthy.

Durante, who is a member of the Senate, offered to carry the motion before the houses of Parliament, but as the voting, curiously enough, was not unanimous, he withdrew his proposal. A few days ago Santini, who is a deputy (the number of medical men in the

Italian houses of Parliament is large and they are a significant body) and who seems to be the principal instigator of the agitation, raised the question in Parliament. The Minister of Public Instruction answered the interpellation by demonstrating that the figure 1500, as representing the number of foreigners, was inaccurate, and that in reality they did not exceed 100 for the whole of Italy, concluding his remarks with the usual assurance that the matter would be attended to in the future. What will be done eventually it is impossible to surmise, but as in the domain of Italian politics the future is often illimitable, it is sufficient for us to note that the agitation exists, but that it is not actively fostered by the great heads of the profession nor encouraged by the Government. We should be the last to believe that the presence of the foreign physician adds an additional charm to the delights of sunny Italy, yet we may be pardoned in thinking that the residence here of the "free lances of Esculapius," as Santini is pleased to dub us, must do something to increase the popularity of Rome, at least as a health resort.

Away from these dusty polemics, the work of the schools and the studies of the laboratories proceed with calm and undisturbed tenor. Dr. Fiocca, of the Santo Spirito Hospital, gives us a simplified process for the serodiagnosis of enteric fever. He spreads a thin layer of fresh broth culture of the bacillus typhosus upon a cover-glass, and into this he conveys from a needle point the smallest quantity possible of blood procured from the patient under observation. Thus the amount of blood mixed with the culture broth is less than that recommended by Widal. The cover-glass is then placed on a hollow slide, as for hanging drop specimens, and may be secured with vaselin. The reaction, says Dr. Fiocca, occurs within ten minutes, or at most from twenty to twenty-five minutes, never after thirty minutes, and it is complete when the characteristic bush-like grouping of motionless bacilli is observed. In the case where a few free moving bacilli are seen between the groups the reaction is considered to be also complete, though of course not so clearly, and the test regarded as confirmatory. The process is quite as reliable as that of Widal, with the advantage of being more easily carried out at the bedside and in private practise.

Dr. De Marsi, director of the gynecological department of the Polimambulansa, of Bologna, reports an extraordinary case of



supplementary menstruation following total vaginal hysterectomy. The patient, a young woman, was operated on in November, 1896, for chronic metritis and double pyosalpinx, probably gonorrheal. A complete hysterectomy was performed and both ovaries with appendages removed. After the operation the patient presented the phenomenon of an ectopic menstruation from the bladder, which recurred at the regular periods. The microscopic examination of the urine during the menstrual period gave the following constant results: (1) Red and white blood cells in abundance; (2) epithelial cells from the bladder walls; (3) no elements that could be traced to the kidneys, pelves, or ureters. The chemical and microscopic examination of the urine is absolutely negative during the non-catamenial period. According to De Marsi the case is wholly without parallel.

Capparoni, the Medico Primario of the Roman hospitals, records some brilliant results in the treatment of Pott's disease of the spine with injections of corrosive sublimate. He quotes in all four cases, of which three are cured and one remains under treatment. The first case was one of cervical disease with a marked gibbosity corresponding to the sixth and seventh cervical vertebræ, and some lordosis of the three first dorsal vertebræ. One centigramme of the sublimate was injected daily into the back of the patient, who was discharged after five months' treatment apparently cured. Two years later, however, the disease showed itself again, and the patient was readmitted and subjected to the usual treatment by fixation under another physician. This was continued for two months, but without success, when the injections were recommenced at the suggestion of Capparoni and the patient discharged cured, remaining in excellent health since then (December 30, 1895). The second case, also cervical disease, after 140 injections was discharged cured, showing no spinal deformity, and still enjoys excellent health. The third case had a dorsal deformity, which yielded to 500 injections. The last is still under treatment and is much improved. Dr. Capparoni concludes his observations by stating that in these cases, if we exclude syphilis, we must assume a diagnosis of tuberculosis, and as he is not able to believe that the latter could be arrested by the action of mercury, we must therefore look for the cause of the spondylitis in some other pathogenic agent which is amenable to the therapeutic action of mercury.

A new double salt of mercury has been prepared by Salvatore Arrosto, the chemist, at the suggestion of Miceli, who is using it with excellent results at the Grand Civil Hospital, for the hypodermic cure of syphilis. Miceli is opposed to the usual preparations of mercury; the benzoate, the bichloride, the biniodide, the succinate, the cyanide—all these, he says, are painful to the patient, giving rise to swellings and indurations at the site of puncture. They are so painful, even with the addition of cocaine, as to be, in some cases, an obstacle to the continuation of the treatment. He is also persuaded that the addition of cocaine or morphine to the injection leads to a double decomposition which renders the injection solution of no value. The new salt proposed and used by him is a double hyposulphite of sodium and mercury, which is twice as soluble as the acetate and nearly five times as soluble as the bichloride. One cubic centimeter of the solution, which is the dose, contains one centigramme of the salt, equivalent to about nine milligrammes of metallic mercury. The injections are administered every other day, and in very severe cases daily; they give little or no pain and cause no induration. The hyposulphite of soda reacts favorably on the patients. Many successful cures are scored for the new *Sal Micheli*, as it is called. Stomatitis is rare as a consequence of the injections, if administered on alternate days.

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*THE TYPHOID EPIDEMIC IN MAIDSTONE, ENGLAND.*

BY DILLON CARBERY, M.D.

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The personal reminiscences of one who had the privilege of taking a small share in the work during eight weeks of the Maidstone epidemic may not prove uninteresting, although they can lay no claim to be regarded as scientific records.

Viewed as an experience, the episode was most instructive for all concerned, but was not devoid of painful impressions. For the doctors there was a superabundance of hard work, for the authorities anxiety and heavy expenses, and for the people the painful illness and sad family losses. Yet there remains this advantage, that an object-lesson has been afforded such as must surely tend to the advancement of sanitary truths, and eventually to the betterment of the afflicted town itself.

We cannot hope for any final report on the

epidemic for some considerable time; for although it is said to be moribund, the malady is evidently dying hard, and no doubt close upon 1900 cases will have been recorded by the time these lines are in print.

Situated as it is in what is called the Garden of England, the chief town of Kent has many charms and natural graces, not the least of which, until lately, was a low death-rate. About the middle of August, 1897, in hop-picking time, an outbreak of diarrhea, not on a very extensive scale and principally affecting the children, was noticed, and attributed to the unusually dry summer. A few deaths occurred, but as September began the health of the town seemed quite restored. One isolated case of enteric fever had been observed, but this was supposed to have been contracted elsewhere.

About September 10 the medical men found that they were getting very busy, and as time went on they were surprised to see their daily work increasing enormously. As yet no one thought of enteric; some spoke of influenza, others were puzzled. After a few days of general astonishment at the extraordinary numbers of patients claiming their care the truth gradually became manifest. On September 16 thirty-eight cases had been notified, and four days later the epidemicity of the fever was fully recognized in a total of 327 notifications. It was then that the doctors, knowing that there must be a great increase in the number of those affected, telegraphed for help and ordered nurses from London and elsewhere.

The urban council meanwhile was waking up, but was not thoroughly roused until convinced by the medical officer of health that the cause of the evil was a contaminated water-supply. The town was supplied from three sources: from the chalk hills of Boarley and Cossington in the north gravitated two of these supplies; and the third was pumped into a reservoir from Rag-stone Springs, three and a half miles to the southwest. In this—the Farleigh—district two of the springs were at no time above suspicion, and a rapid examination revealed a sorry state of affairs. The Tutsham-in-orchard Spring, used as a watercress bed (!), was the recipient of the drainings of a privy hard by! The Tutsham-in-field Spring had been polluted by hop-pickers.

The latter spring—now known to have been the original source of the poison—was situated in a meadow and rose within a foot or so of the surface, above the layer

of impermeable clay. Through the meadow ran a road unprotected by hedge or fence. Here in August an encampment of hop-pickers was allowed to take up its position, and a very slight knowledge of the hop-picker or his habits makes it clear that pollution of the worst kind would result. Given the fact, as demonstrated later, that enteric fever did exist in this very encampment, and we have as complete a tale of water-borne fever as was ever told, to which it would be superfluous to add that the filter-beds for the water of this area had not been in use for some time.

These facts were of course not known in full during the first days of the epidemic; some indeed denied that the Farleigh water could be at fault, as there were no cases at the Barming Lunatic Asylum in the suburbs of the town, and supplied with the same water. No sooner was the objection made than the outbreak of fever amongst the inmates of the asylum gave it the lie, and the peculiar distribution of the cases, which were confined almost exclusively to the area supplied with the tainted water, made the impeachment of the supply a certainty. In one street, for instance, where on one side Boarley water was used, there were no cases, whereas the opposite side had as many cases as houses; and in a certain terrace the only house to escape the sickness used the water from a private well in the rear, whilst the others drew theirs from the contaminated mains.

And still the cases became more numerous; soon 600 was reached, and the town was in the greatest state of anxiety. About this time the work was heaviest for the doctors, as the district nurses had not yet been imported and the hospitals not organized.

In dealing with so large a number of patients and so serious a malady, much strain was put on the usual practitioners of the town, so they early sought help from outside. In the practise of the Mayor and his son, Dr. C. Pye Oliver, in which I was helping, the method of procedure was simple, and if somewhat laborious, certainly most satisfactory in every other way. Handy portfolios, octavo size, were made for us by the local bookbinders, fitted with strings so as to carry a large number of ordinary clinical charts. These books we took with us on our rounds, and a brief history of every fresh case seen was noted at once on a chart with the usual clinical observations and directions as to food, drugs, and stimulants. If after a few

days' observation the case proved not to be typhoid, the chart was put aside. Thus at any time the number of those under observation, the number notified, as well as a clear record of each particular case, was available. These notes were of further use in enabling us to form an early diagnosis, so as to report more rapidly and with greater certainty to the health office. Of course the work entailed in keeping these accurate memoranda in the midst of so much bustle was great, still it was counterbalanced by the possibility it gave each of us of keeping an intelligent eye on at least eighty synchronous cases. When the nurses came, our private charts were no longer of such primary importance, as charts were issued by the Emergency Committee and kept in the sick-room by the nurse in attendance.

Besides the note-book, each physician carried a bag containing a supply of clinical thermometers and emergency drugs. Where a doubtful case was concerned one of the thermometers was entrusted to the friends with directions to place it under the arm of the patient at a given time. These instructions were carried out quite easily even by the most unintelligent, and when the case was seen again the temperature recorded was a most valuable aid to diagnosis. This simple expedient is of evident value in cases where in ordinary practise enteric is suspected and the doctor is anxious not to alarm his patients or their friends by calling twice or sending a nurse.

Amongst the emergency drugs were tablets of phenacetine (four grains) and caffeine (one grain), which we found an efficient palliative for the initial headache; tablets of opium, of quinine, and hypodermic solutions of caffeine, strychnine, and ether. Lastly, we had a quantity of boracic acid in half-ounce packages; these we left at the houses with instructions to dissolve in one pint of boiling water and to administer from one drachm to one ounce, according to age, every two or three hours. This was an expedient resorted to so as to avoid the terrible stress of work at night in the surgery or office, where at first we were quite swamped by the unusual horde of people who wanted medicine. One of the most arduous tasks we had to perform was this attendance at the surgery; here the clubbers or contract patients assembled in force after 8 P.M., and it was difficult to keep them in order or to attend to their wants. Some indeed were falling ill with typhoid and wished to consult us; others thought they

were and were no less anxious for advice. All wanted medicine. Three hours seldom sufficed to attend to all these people and to send out the drugs ordered during the day. For this reason we used the boracic acid in packages, and it saved a great deal of worry and needless work during the first great rush; as to its curative value I shall have a word to say presently.

Later on, when the nursing staff was complete, we had a series of post-cards printed. On the back were divisions marked for name and address, time of visit, temperature, pulse, respirations, and state of bowels. They were directed to us. Where a case was not seen for twenty-four hours the nurse in charge filled in the form and dropped it into the letter-box. If the case was urgent the card was sent by hand, and from the notes made a very clear judgment could be given as to the nature of the emergency. This precaution saved us a great deal of unnecessary visiting at night, which it was expedient to avoid, as the day work was so arduous that a good night's rest was a *sine qua non*.

Meanwhile the sanitary authorities were no less busy, and orders for the boiling of water and milk were promptly issued. The two suspected springs were cut off, and later the whole of the Farleigh supply. About September 22 a bacteriological inquiry into the condition of the water was entrusted to Dr. Washbourne, of London.

Still the Farleigh mains had not as yet been disinfected, and as there was much popular alarm, fomented no doubt by the warnings of the *British Medical Journal*, the whole system used for the supply of the tainted water was eventually sterilized with chloride of lime. Orders were issued to the inhabitants to open all taps at 11 P.M. on Saturday, October 16, and to close them again at midnight, leaving them closed until the following Monday at 6 A.M. Meanwhile Dr. Sims Woodhead, adviser to the Water Company, was busily employed in throwing one and a half tons of disinfectant into the reservoir, with the result that about 11.30 the disagreeable odor of chloride of lime permeated most of the houses. The germ-bane ran through too prematurely; for the water stored by us in the bath-room for washing purposes became so foul with the advent of the disinfectant that it had to be condemned for use and consigned to the drains.

During the temporary famine that ensued, water was supplied to the town in army carts kindly lent by the military authorities at

Chatham. What subsequently came through the taps on Monday morning was absolutely undrinkable, and the odor of chloride of lime was perceptible everywhere. Unquestionably the germs in the mains must have been routed in those thirty-six hours, for surely they would have preferred death to those pestilent fumes.

Nurses had been gradually drafted into the town by the urban council—some for the district, others for the hospitals. They were lodged at private houses and various institutes as guests or boarders; their numbers increased *pari passu* with the need for their services. We had not, as a friend from Canada suggested, one thousand nurses, but the total figure was not much under four hundred, including private nurses and those sent at the expense of individuals or public bodies. The nurses who were in the service of the corporation and engaged in district work wore a distinctive badge bearing their number. Twelve patients were allotted to each nurse, and to reduce fatigue it was so arranged that the cases of each lay close together—say in one street or on two sides of a block. Morning and evening they visited, taking temperatures, sponging, etc., performing such of the duties of head nurse as were possible under the circumstances. Special cases were seen oftener, and in the houses of these the nurses could usually be found by the doctor when on his rounds.

The friends of the sufferers became by degrees initiated into a sufficient knowledge of nursing and were able to assist the nurses materially; many indeed could interpret the charts, and the patients themselves would sometimes scan their temperature curve with a considerable amount of interest. In one instance a little lad of ten would cry so bitterly if his temperature went up that on one occasion when it reached 105° we were obliged to conceal the chart in an adjoining room, where it was kept for the rest of his illness.

In very severe cases where close attention was required, the medical attendant could requisition a night nurse who came on duty at 9 P.M. Of night nurses there was a most efficient staff, mostly recruited from the London Hospital Private Nursing Institution, and to their skilled care many patients undoubtedly owe their lives. The night nurses wore a badge like the others, but with a central disk of carved oak coated with luminous paint.

Volunteers also were not wanting, and

amongst these the Volunteer Medical Staff Corps rendered valuable aid in attending, by night, to such male cases as were unmanageable through delirium.

To the Emergency Committee, a section of the corporation presided over by the medical officer of health, is due the credit of fitting up the emergency hospitals, of which no less than eight, with a total accommodation for over 250 beds, were installed within forty days of the outbreak. It was no light task to undertake, but the ingenuity of the committee soon transformed two or three day schools and as many mission rooms into charmingly appointed little hospitals, whilst a private house with the Salvation Army barracks adjacent was made to yield efficient accommodation for nearly seventy beds.

During the early days of the epidemic it was very necessary to get the severe cases removed, partly for the sake of better nursing and partly as a preventive measure; but when the district nursing was organized it was found more convenient and more beneficial to the patients to treat them in their own homes. The mortality during the first few weeks was high in the hospitals, owing to the fact that only the more severe cases were taken in.

As it was proved during the Worthing epidemic, the best results were obtained where the sick could be kept in their houses under the care of competent nurses.

Early in the epidemic the local soup kitchen, a charitable institution, became overwhelmed by petitions for beef tea and milk from the poorer classes of the afflicted, so to supply the needs of these the guardians of the poor opened a temporary relief station. The distribution of food necessities for the sick was entrusted to the doctors and nurses, who carried order books for the purpose. This poor-law relief, intended only for the necessitous, was asked for and granted to the major part of the working classes, for a family that could not be called necessitous at ordinary times was reduced to poverty if the breadwinner was attacked or a number of the household were simultaneously affected. Milk, eggs, beef and mutton for broth, and all other medical necessities, were supplied freely on the doctor's order. Several of these stations were established, and the demand at each did not slacken until the Central Relief Committee opened their stores in the Corn Exchange. Here were to be distributed the unlimited and varied presents sent to the town by sympathizers all over

England. To enumerate these would be to quote the list of a universal provider. One might mention *inter alia* a ton of arrowroot, between seven and eight tons of wearing apparel, and 30,000 bottles of mineral waters. We were given to understand that there was even a limited supply of coffins and tall hats. To add that such trifles as chartreuse, Benedictine, old cognac and choice brands of champagne were to be had in plenty seems almost superfluous. The distribution of these stores was presided over by a committee and directly effected by officials recruited from the ranks of the schoolmasters whose pædagogia had been emptied of scholars to be filled with typhoid patients.

It was an interesting sight to see the Corn Exchange crowded at all times with the friends of the afflicted seeking this or that requisite ordered by the doctor. Here was a tiny child struggling under her load of sterilized milk and beef broth in tins; there a brother carried a basket of mineral water bottles; some wanted eggs or coffee or brandy, others an ice-bag and a blanketful of ice. Nurses hurried in and out laden with toys for the children, books for the older ones, and garments for all; one carried blankets and sheets, another pillows and a bed-rest.

There could not help but be abuse in this general present giving, and indeed we were only amused to hear that one ambitious woman had succeeded in getting no less than eighteen blankets at different times, said blankets finding their way almost directly to the pawn-shop. This particular form of abuse the Relief Committee were able to prevent by marking all bed necessities and articles of a like nature with a special stamp. Our poor patients wanted for nothing, for water-beds, bedpans, easy chairs, feeding cups, beds, bedding, linen and woollen bedclothing were all forthcoming; in a word, all the paraphernalia of a first-class hospital could be procured on the order of a medical man or member of the committee.

A friend who was passing through the town accompanied me one night on my rounds; he could hardly believe that the first house we visited (where there were four cases) was not a hospital, but only the house of a poor washerwoman. The scrupulous cleanliness and neatness of the rooms, the presence of the bright linen-clad nurse, the snow-white beds with charts above each, the tables for medicine and food, all helped to make the illusion complete.

To mention all that was done by the sanitary authorities would be to give the history of the epidemic in detail. We must not forget the public laundry, however, where all infected linen was sterilized. Special canvas bags were deposited at the houses of the patients, in which the sheets and clothing were placed, to be collected by special vans every day. It is interesting to note that no one in connection with this establishment contracted the fever. This was due, of course, to the fact that the infected articles were not handled at all by the employees, as the canvas bags were tumbled into large iron cradles, which were subsequently lowered by a chain into the boilers.

The cost of all these undertakings was said to be about £1500 a week. The relief fund amounted to about £3000, of which a large portion was collected in the borough of Maidstone.

As to the state of panic in which the inhabitants of the town were supposed to exist, the reports were greatly exaggerated. To a stranger there was but little evidence of that internal disorder suggested in the London papers. To one who knew the town, there were indeed many indications of unwontedness. The groups of nurses hurrying through the streets, the many and varied posters showing forth the efficacy of this or that food, drug, or preventive, or extolling the purity of some new table water, the printed warnings to the public headed "Typhoid Fever," and notices of the Relief Committee were a chronicle of the times for the observant. At the town hall daily could be read the list of fresh notifications and the growing number of deaths.

The streets, too, were unusually empty, owing to the timidity of the agriculturists; and the melancholy spectacle of six or seven funerals streaming in the same direction at the same hour was an ample commentary on the story of the town's disaster. In the shops trade was for a time almost at a standstill, and the constant topic of conversation was the epidemic and the mischief it was working. So keenly was this trade depression felt that the Mayor, himself a medical man, drew up a memorandum stating that visitors to the town need not fear infection in making their usual purchases. This notice, signed by the medical men, was displayed in all the shop windows and distributed through the country. Still visitors were few, and buyers in the market fewer still. Nor would they partake of anything edible. As a prophylactic, how-

ever, they consumed brandy incontinently, much to the delight of the publican, whose town-brewed beer was of course tabooed. The mineral water-makers issued large bills showing that their produce was made with boiled water, but non-local firms profited by the scare. It is on record that five tons of cobnuts, sold in the town, were refused by the consignee as being infective material! Hops in the same way was made unsalable because sent out in packets bearing the fatal word "Maidstone." The acme of the ludicrous was reached when a Liverpool firm in sending a check to a local bookseller requested that no receipt be sent back lest the poison should accompany it!

Still with all the good people of Kent took their troubles very stolidly, and in most cases buckled to and nursed their sick with energy and kindness if not with intelligence. A few cases there were where fear subverted natural affection. A certain man, for instance, sent back his wife to London (where she had been staying a few days) on the very day of her coming home stricken with the fever. On her return to the metropolis she was taken into hospital, where she did well, but her husband, curiously, contracted the fever and died in the first fortnight. It was of course impossible to get servants to help in those houses that were affected. In some childless homes the husband was obliged to give up his work and undertake the unwonted duties of nurse and housekeeper. It was not an uncommon thing for patients to be left unattended for many hours, and in one case I found a poor young woman who had not had any one to give her a drink for over twelve hours. In another house was found a small child alone in one of the up-stairs rooms; her father and mother had both been removed to hospital; she had evidently been forgotten by the neighbors, and was in a very pitiful condition of hunger and fright when discovered. A mother and her two daughters were attended for some days by a child of six; and the nurses reported a case where a man and woman recovering from influenza, with their ailing baby and a boy down with the fever, all shared the same bed. These were sad cases, no doubt; but one could not help feeling that there was grit in humanity when one saw a poor washerwoman sole nurse and servant to her three daughters, her son, and her husband—all abed with the fever.

Even in the midst of all this anxiety and desolation there were times when a humorous

situation or an absurd malapropos lightened the tragedy with a little comedy and laughter.

Amongst what might be called the humors of the epidemic the following, incredible as they may seem, came under my own observation: On one occasion, when at the barber's, a man who occupied the adjacent chair stated that he had seen with his own eyes the typhoid germs in the water, and when asked to explain he assured the gaping audience that by the simple expedient of pouring a few drops of vinegar into a tumbler of water he was enabled to see the microbes crawling up the side of the glass! The opinions of the poorer classes as to the nature of the poison were even more extraordinary. One burly matron assured me that she knew all about typhoid, and with an air of authority expressed her conviction that it was due to a worm that grew in the body! Others, again, had strange tales to tell of the foul condition of the reservoir, and from a solitary eel and a few barrows of mud (which were actually cleared out when the reservoir was drained for inspection) they manufactured several tons of eels and many feet of refuse. Some stated that a dead horse had contaminated the water; others that it was the corpse of a baby, which by some was magnified into that of a woman and by other authorities that of a tramp. The climax of aggravation was attained when an elderly shoemaker confided to me his belief that the body of a nigger had actually found its way into the mains! In spite of these reports, and the repeated warnings and pointed notices of the sanitary authorities, some of the people persisted in drinking the water unboiled. Indeed, in the case of a row of cottages whose supply came direct from the rising main, the occupants actually petitioned the board of the water-works to restore the supply when it had been cut off.

These curious demonstrations of popular prejudice, including the precautions of a stranger who rode one night through the town with his face tightly muffled in a white pocket-handkerchief, though undoubtedly amusing, must pale their lights before the credulity of a family who actually caught in their sink and bottled a fine and large specimen of the bacillus typhosus. On arrival at their door on the eventful morning I was greeted with cries of the wildest excitement mingled with the pitiful wailings of two young patients abed up-stairs. I was alarmed at first, but when assured by two pale-faced girls that they had just caught it and put it

in a bottle, I could not restrain my laughter. They showed me a very large, horny centipede that had been washed out through the tap, and which they were convinced was the very germ itself. My two little patients were horrified into tears by the thought that their vitals were being consumed by an army of scaly reptiles of the same type. It took some time and many playthings to console them.

A very curious superstition was demonstrated to me by an old woman whose daughter had typhoid. When ordered to burn some rags, soiled by the dejecta of the patient, the mother refused to do so, as she had always heard that to burn any of the motions of a human being would inevitably lead to their death from a wasting of the bowels. I have subsequently heard that this belief is prevalent in Italy, more especially in Naples, and is also well known in Ireland. The ultimate disposal of sewage by cremation has, it would seem, some ardent opposers, who no doubt regard it as nothing less than wholesale murder.

As to the special features of the fever, it was decidedly of the text-book variety, presenting the usual varieties and but few abnormalities. Of the so-called abortive cases mentioned by Türgensen, I saw none. There were a few apyrexial attacks in which the temperature never touched  $100^{\circ}$ , and in one of which the curve of fever was only once about normal; in this case there occurred, on one occasion, alarming collapse. A case of the ambulatory type was demonstrated in a woman who confessed to all the symptoms, had a slight elevation of temperature, a most characteristic tongue and a copious rash, but was carrying on her usual occupations in the household and could only with the greatest difficulty be persuaded to accept treatment and physiological rest.

Amongst the most interesting abnormalities may be quoted a case (observed in hospital) where a genuine relapse followed after three weeks of complete convalescence.

On the whole, the prevalent malady was not of a mild type; relapses were common and the course of the pyrexia prolonged. Hemorrhage and delirium were frequent.

One of the most interesting features of the epidemic was the variety of rashes observed, the most puzzling being the scarlatiniform rash, coming on with a sudden rise of temperature, and identical with eruptions due to ptomaine poisoning from ingested foods.

The Tache Bleuâtre was not noticed, much

to the credit of the cleanliness of the Maidstone people. Herpes, though rare, I observed in several cases with or without lung complication. Urticarial, eczematous and sudaminous rashes were plentiful. In one case a hard, papular rash not unlike smallpox showed itself, curiously confined to the palmar surface of the hands. The explanation of the incidence of these rashes we find in a report of the medical officer of health, which discloses the extraordinary fact that there are at least 4000 houses in the borough whose water-closets (save the mark!) are waterless and innocent of flushing appliances! The poisonous effects produced on the inmates of these houses, whose house-drains were little better than elongated cesspools, were only too evident, and no doubt helped materially in increasing the death-rate and number of the affected. The sanitary authorities recognized this fact early, and in every instance the house drains were flushed with the hose and disinfected with crude carbolic acid; but the inmates had become so lowered by the continuous inhalation of noxious gases as to become ready victims to the scourge or to succumb more easily if already affected.

Of enteric fever during the puerperium we had one case. The fever was in its second week when natural labor took place. The child was nursed at the breast by the mother, who attributed her discomfort to the usual phenomena of parturition. The infant showed no symptoms of typhoid, although the lying-in room was shared by a son aged fourteen, whose illness was of the same date as that of his mother. This boy was removed to hospital and the baby put out to nurse, the mother making an excellent recovery.

Amongst the complications thrombosis seemed the most frequent. Pleurisy was also noted, and in one case (out of fifty-six) orchitis.

The treatment adopted was varied, but in the main expectant. Antiseptics had their supporters, and amongst these the boracic acid treatment seemed to afford a certain amount of satisfactory results. It would be inexpedient to rehearse the polemics of this question of antiseptics, but one cannot help thinking that if *excessive* bacterial action is arrested by their use a point has been gained, adding to the comfort and chances of the patient. However this may be, boracic acid given in the manner I have already spoken of caused no unpleasant symptoms; it was readily taken and retained, and seemed,

speaking roughly, to lessen diarrhea, obviate abdominal distention, and generally to mitigate the course of the fever.

The milk diet was in all cases adhered to, and amongst other preparations humanized milk might be cited as being close upon perfection, more agreeable than peptonized foods, and more easily retained and assimilated. As substitutes for milk, whey with albumen, water and various malt preparations were adopted; but of the exclusive use of the latter I had no experience.

Of alcoholic stimulants a free use was made, in some cases in doses of from fifteen to twenty ounces in twenty-four hours. So general was the recourse to alcohol, indeed, that the wrath of the total abstinence faction was mightily aroused. Some amusing though vituperative letters to the press were the result, in which the abstainers, with the infinite authority of ignorance, condemned the doctors and predicted a mortality of over thirty per cent.

Of other stimulants, strychnine hypodermically gave the most grateful results in heart failure or respiratory weakness.

It was of course impossible to use complete hydrotherapeutic measures, as the full-length bath is not an accessory of the houses of the poor; tepid sponging, however, and cold or ice packs were used as occasion arose.

In comparison with other epidemics that of Maidstone can lay claim to the highest total of cases, with a mortality, if not the lowest, undoubtedly much below the average (December 11: Total cases 1885; mortality 7.5 per cent.). This low death-rate was due no doubt to the energy of the authorities, the skill of the nurses, the generosity of friends all over England who so largely contributed in kind and currency, and, not to be over-modest, to the improved training and more approved methods of the medical profession.

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*REPORT OF A CASE OF DIPHTHERIA INVOLVING THE LOWER LARYNX, TRACHEA, AND BRONCHI, WITH RECOVERY.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Mrs. H., aged eighteen, had a cold since December 1, and on January 7 lost her voice. On January 10 she called in Dr. Truitt, who found the patient suffering with some dyspnea and cough, and a temperature ranging from 102° to 103°. There was no deposit in the pharynx or on the tonsils at this time or subsequently. On the 12th of

January there was coughed up a membrane about three inches long. On the morning of the 13th I was called in consultation; the patient had great dyspnea and coughed up a second piece of membrane about two and a half inches long. Through the courtesy of Dr. McCormick, the city bacteriologist of Norfolk, a culture was made from this and found to be purely diphtheritic. The temperature remained about 102° to 103°, the dyspnea continuing. On the morning of the 13th of January 1000 units of the anti-toxin of Parke, Davis & Co. was administered, stimulating treatment being maintained meanwhile. On the evening of the same day another 1000 units of the same serum was injected. The dyspnea was improved shortly after the first injection; the temperature rose to 104° and remained there until a few hours after the second injection. There was considerable nausea, and on the next morning (the 14th) the membrane shown in the illustration came away with relief of all the symp-



toms, the temperature fell, and the dyspnea was entirely relieved. The patient made an uninterrupted recovery and is now convalescent.

Thanks are due Dr. Gwathmey for mounting the specimen, and Dr. McCormick for making culture.

M. MORGAN, M.D.

BERKLEY, VIRGINIA.



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## Original Communications.

### ARE THE FLUID PREPARATIONS OF DIGITALIS ACTIVE WHEN MANUFACTURED INTO TABLETS?

BY E. M. HOUGHTON, M.D.,

Lecturer on Experimental Pharmacology, Detroit College of Medicine.

From the above title it may be inferred that the activity of the tablet preparations of digitalis has been questioned, notwithstanding the fact that pharmacists and manufacturing chemists have prepared such tablets for the medical profession for years. Indeed, this paper was called forth by some clinical

experiments which were brought to my attention by the editor of the THERAPEUTIC GAZETTE, tending to show that the tincture of digitalis became inert when exhibited in tablet form, and reported by Dr. Judson Daland to the Philadelphia County Medical Society. I have not been able to find any other reports of experiments on this point, and since the question is one of far-reaching importance, it seemed desirable to make some very careful animal experiments in order to confirm or refute the opinion expressed, and to place the biological results before the medical profession; since by animal experiments we can more exactly study the action of any particular drug upon the various organs than is possible in the human

subject, and the action of the various heart tonics upon the several factors concerned in maintaining the circulation having been very carefully studied in amphibians and mammals.

**Material Employed.**—(1) New tablets prepared from tincture of digitalis, old stock (No. 3); (2) old tablets (two years old), tincture of digitalis prepared from old stock (No. 3); (3) stock two years old, from which tablets Nos. 1 and 2 were prepared; (4) new tablets containing old fluid extract of digitalis; (5) stock two years old, from which tablets No. 4 were prepared; (6) new tablets prepared from a fresh fluid extract of digitalis; (7) new stock from which tablets No. 6 were prepared; (8) blank unmedicated tablets.

Three series of experiments were undertaken in order to decide the question beyond doubt.

The several tablets, and the preparation from which they were manufactured, were each made into a solution, which represented one per cent. of the crude drug. These solutions were numbered one to eight, to correspond to the tablets and other preparations from which they were made. The tablets were brought into solution by first dissolving them as far as possible in a certain amount of ninety-four-per-cent. alcohol, filtering and washing the undissolved portion on the filter with more alcohol, until there remained little possibility of any of the active constituents of the digitalis remaining undissolved. The filtrate and rinsings were then evaporated at about 70° C. to a pilular extract, which was taken up with the requisite amount of as dilute alcohol as would bring the extract into solution. The preparations from which the tablets were made (since they were alcoholic) were evaporated to soft extract, and then taken up with the same strength alcohol as that employed for dissolving the residues left from the tablets.

I. The minimum fatal dose of each of the several fluids was then determined for frogs of the same kind and weight, kept under identical conditions, with the following results:

No. 1.—Min. fatal dose per gm. body weight, .0009.

No. 2.—Min. fatal dose per gm. body weight, .0009.

No. 3.—Min. fatal dose per gm. body weight, .0009+.

No. 4.—Min. fatal dose per gm. body weight, .0009.

No. 5.—Min. fatal dose per gm. body weight, .0009.

No. 6.—Min. fatal dose per gm. body weight, .0006.

No. 7.—Min. fatal dose per gm. body weight, .0006.

No. 8.—Several times the amount of this solution, prepared from the blank tablets, as was found necessary to kill with the solutions containing digitalis, failed to produce any ill effect whatever.

In determining the minimum fatal dose, tests were made in each instance upon a number of frogs.

Fluid extract No. 7, from which tablets No. 6 were prepared, was about one month old and from a drug just imported from Germany. It will be noticed that solutions Nos. 6 and 7 were about one and one-half times as strong as the others. However, both the old and the new preparations were much stronger than the average sample.

Very frequently I have found variations of three and four hundred per cent. in the physiologic actions of fluid extracts of digitalis prepared from different samples of crude drug.

While there was a slight variation in the killing power of each of the several solutions, as indicated by the positive and negative signs, no great disparity of strength could be noted between the solutions prepared from the tablets and those prepared from the mother preparations. A careful post-mortem examination of the frogs employed in the experiments was made to determine the condition of the heart. In each instance the organ had ceased beating in the systolic condition; this is practically always the case with the frog's heart when digitalis or other of the heart tonics has been given. It may be gathered also, from the physiological effects of the different solutions, that the active properties of digitalis are not lost more rapidly when the drug is kept in tablets than when it is kept in liquid condition, since tablets No. 1 were equally as strong as No. 2 or preparation No. 3.

II. The action of the several solutions was determined upon the laid-bare frog's heart, the beats being counted at short intervals. Except when the solutions from the blank tablets (No. 8) were employed, the rhythm became slower and slower, and the diastole of the ventricle less and less, while the systole, as shown by the whiteness of the ventricle, became more and more perfect, the heart ceasing to beat in the contracted condition in from ten to fifteen minutes.



No. 1. Normal tracing.

No. 2. One minute after the application of the digitalis solution.

No. 3. Seven minutes after the application of the digitalis solution.

No. 4. Twelve minutes after the application of the digitalis solution.

A number of tracings were recorded on the kymograph from the laid-bare frog's hearts, one of which is reproduced herewith, showing the results of an average experiment.

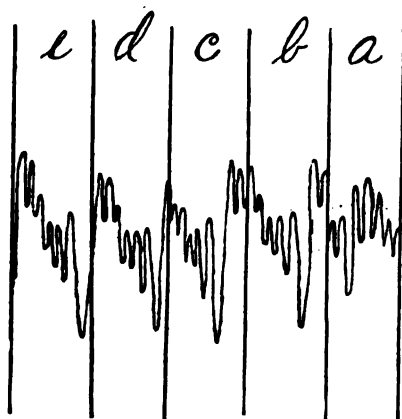
A comparison of the records 1 to 4 on the tracing shows the following points:

1. The rapidity of the beats became less and less, until the heart finally ceased to beat in twelve minutes.

2. The down strokes in the tracing, which were made as the heart assumed the diastolic condition, became shorter and shorter, until finally they ceased to be made.

3. The systolic pause, as shown by the upper horizontal strokes, became greater and greater until the heart ceased to beat, the systolic standstill being marked by a continuous horizontal line above the same distance from the base line as the top of the up strokes in No. 1.

III. Blood-pressure tracings were made from dogs, under the influence of the several solutions, Nos. 1 to 8. In every instance the results obtained showed the characteristic action of the heart tonics except in the case of solution No. 8, which did not influence blood-pressure or the character of the tracing. It is not possible to show all the tracings taken, but the following will indicate very clearly the results obtained. Each of the tracings was taken from the carotid artery, the solutions being injected into the jugular vein. The tracings are all to be read from right to left.

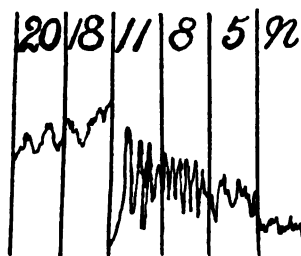


TRACING NO. 1.

No. 1 shows the action of the solution from blank tablets No. 8: (a) The normal tracing before the solution was injected; (b) five minutes after the injection; c, d and e were each taken at later periods up to one-half hour. Very large quantities of the solution were injected, still no action was manifested

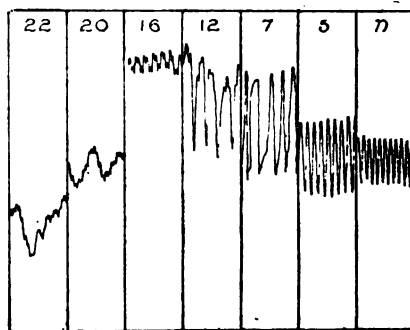
upon the rate or strength of the beats or upon the blood-pressure.

Tracing No. 2 shows the action of the solution from tablets No. 1; while tracing No. 3 is the record of the action of the old preparation No. 3 from which the tablets No. 1 were made. These two tracings show that approximately the same results were produced by the action of the solutions upon the circulatory factors concerned. In each there is a primary slowing of the rhythm without



TRACING NO. 2.

much rise in pressure [from] the action of the drug upon the medullary centers, and the cardiac terminations of the vagus; at the same time the relaxation and contraction of the ventricle is more perfect. Especially is this noticeable in tracing No. 3; five minutes



TRACING NO. 3.

after the introduction of the drug. In a short time, as the drug is pushed, great slowing of the rhythm is produced, and at the same time the blood pressure rises. Both these results show very clearly in No. 3, while in No. 2 there is marked slowing, but less rise in blood-pressure. As the toxic effects become more pronounced the pressure goes still higher and the beats become more rapid, very irregular, and less perfect. Soon the blood-pressure falls and the heart ceases to beat. Post-mortem examination found the heart in the diastolic condition.

The following table gives the numerical results obtained from an analysis of one of the tracings from solution No. 6:

| Time. |      | Beats in 20 seconds. | Low blood-pressure. | High blood-pressure. | Mean blood-pressure. | Remarks.                         |
|-------|------|----------------------|---------------------|----------------------|----------------------|----------------------------------|
| Min.  | Sec. |                      | Mm.                 | Mm.                  | Mm.                  |                                  |
| 0     |      | 25                   | 60                  | 120                  | 90                   | Normal.                          |
| 1     | 12   | 25                   | 52                  | 122                  | 87                   | Normal.                          |
| 2     | 50   | 24                   | 60                  | 136                  | 98                   | 1 Cc. solution in the jug. vein  |
| 4     | 7    | 25                   | 58                  | 130                  | 94                   |                                  |
| 5     | 50   | 21                   | 70                  | 144                  | 107                  |                                  |
| 7     | ..   | 20                   | 72                  | 150                  | 111                  | 2 Cc. solution in the jug. vein. |
| 8     | 30   | 17                   | 82                  | 160                  | 121                  |                                  |
| 11    | ..   | 17                   | 98                  | 178                  | 133                  |                                  |
| 11    | 30   | ..                   | ..                  | ..                   | ..                   | 3 Cc. solution in the jug. vein. |
| 15    | ..   | 60                   | 168                 | 194                  | 181                  |                                  |
| 19    | ..   | ..                   | ..                  | ..                   | ..                   | 2 Cc. solution in the jug. vein. |
| 23    | 40   | 61                   | 90                  | 130                  | 110                  |                                  |
| 27    | ..   | ..                   | ..                  | ..                   | ..                   | Dead                             |

Blood-pressure is given in Mm. of mercury.

A point worthy of serious consideration is the variability in the quantity of active constituents in different samples of crude digitalis as shown by physiologic examination. The lack of action manifested by the tablets prepared for Dr. Daland may have been entirely due to an inactive drug having been employed for making into the tincture. The pharmacist may easily be deceived as to the active qualities of the crude drug digitalis, procured on the market for his preparations, as he cannot rely upon the physical appearances as being the correct criterion of strength, and he has no way of making a chemical assay. The only way he can guarantee that his preparations of the heart tonics are physiologically active is by an actual test on animals, or by a clinical experiment. The latter method, of course, should never be employed, as the reaction of animals to the heart tonics is positive.

I believe we are fully justified in drawing the following general conclusion from the above series of experiments: Active fluid preparations of digitalis do not lose in activity by being manufactured into tablets, nor do the tablets become less active by keeping than do the other preparations of digitalis.

#### THE ENURESIS OF CHILDHOOD — THE RATIONALE OF TREATMENT.

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The experience of a large out-patient department of a children's hospital suggests to me that no apology is necessary for the attempt, however trivial, to introduce order

into the therapeutic chaos that hangs about this subject. Medical men seem to have two weapons with which to urge an ineffectual crusade—belladonna and circumcision—and lean to one or the other indifferently, as their tendency is medical or surgical. Each may be an excellent remedy in appropriate cases, but let us pour our libations of belladonna on the altar of Reason, and not on that of Authority, and let us not make a scapegoat of any but an offending foreskin. To this end it is essential to have in mind the exact mechanism of micturition, and the possible derangements that may conduce to enuresis. In infancy enuresis is a normal condition because of the functional immaturity of the centers of inhibition, reflex micturition being not yet resisted by the will. It is as though in infancy the connections of the spinal with the cerebral centers were cut, for will at this period is a negative quantity. The exact condition will be readily seen on reference to Fig. 1, which shows diagrammatically the machinery of micturition in early infancy.

Micturition is, then, practically a simple reflex, as the brain knows nothing of what is taking place in the bladder. At a certain degree of distention the nerve terminals of the bladder convey an impulse to the sensory portion (S) of the spinal center, which communicates it to the detrusor center (D) and the sphincter center (Sph.), so that there is simultaneous contraction of the detrusor urinæ, and relaxation of the sphincter vesicæ, and urine escapes under pressure from the bladder (B). As soon as a few drops of urine have entered the proximal portion of the urethra (C), which is intensely sensitive to its presence, still stronger impulses are conveyed to the sensory spinal center and energetically maintain its activity.

In the very large majority of cases of enuresis we have to deal not with a persistence of this condition, but with a retrograde tendency setting in after full control has been established. In some cases, however, either from improper training by the nurse or from defective educability of the child, it is a mere continuance of the infantile condition, and the requisite treatment is more careful instruction. But in most cases the center of inhibition is developed, and has exercised functional activity, but for some cause or other has lost its supreme control. There is in fact a falling back from the condition shown in Fig. 2 to that of Fig. 1.

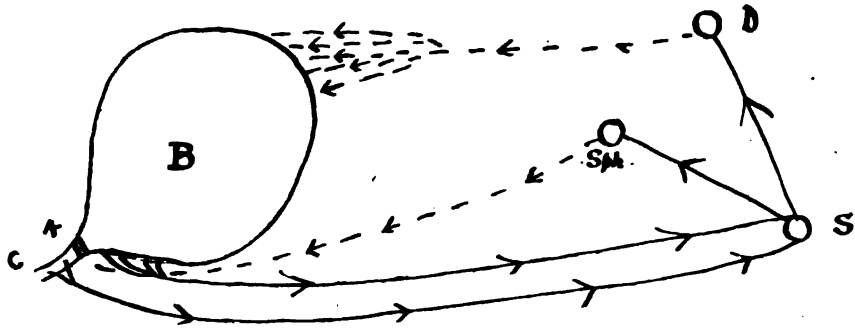


FIG. 1.

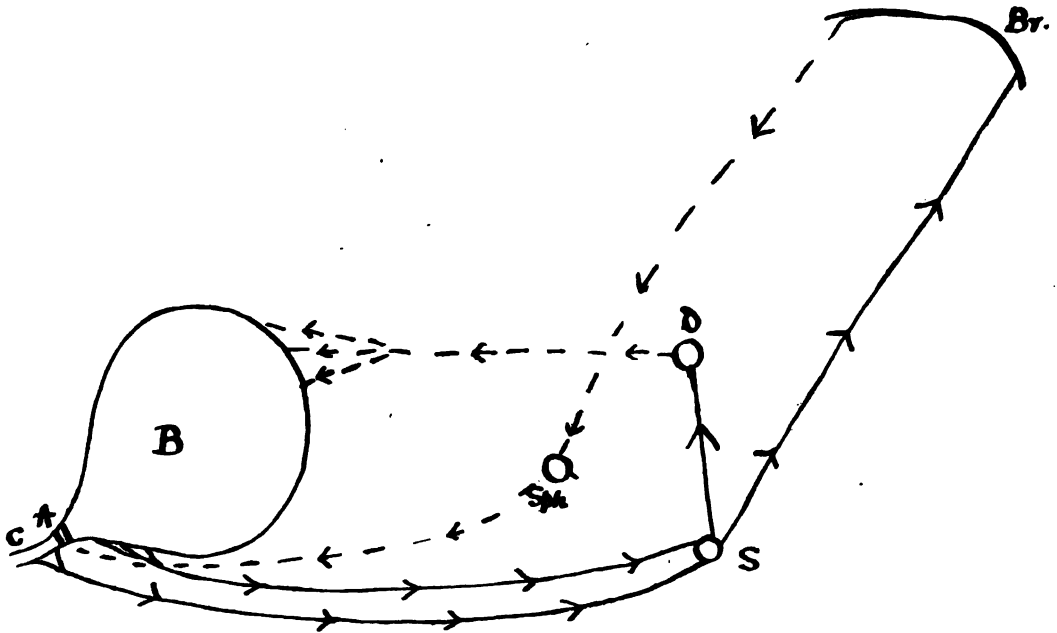


FIG. 2.

In Fig. 2 the mechanism of full control is shown. The message received at S is communicated to the brain (Br.) and to the detrusor center; the brain in turn relaxes the sphincter, and micturition takes place. The practical question then that arises in cases of enuresis is, how is this retrograde tendency brought about? and on this hinges the whole question of treatment. If the sphincter vesicæ is under complete control of the will, how is it that the balance of power passes over to the side of the detrusor? During sleep the inhibitory influence of the will is very largely in abeyance, so that there is a partial interruption of the connections of the spinal center with the brain center; hence, while diurnal enuresis is comparatively rare, nocturnal enuresis is extremely common. Sleep, then, tends to reopen the reflex arc, and the heavier the sleep the greater the tendency. Again, it is possible that in sleep

the brain center may be disturbed by psychical influences, but I cannot say that I am convinced of such a psychopathic form of enuresis. Such psychic disturbances originating in the brain may conceivably be transmitted as impulses to the spinal centers and induce micturition. The child may dream that he is in a convenient spot to ease himself, and take advantage of it. Certainly some children are intensely sensitive to the uncleanness of the habit, and it is possible that they may thus be subject to some kind of autosuggestion. That such a *reve urinaire* does exist is beyond doubt, but whether it be the cause or the consequence of enuresis is very difficult to decide. Diagrammatically this form of enuresis is shown in Fig. 3. Here the impulse starts from the brain and travels to the sphincter center, relaxing the sphincter, so that a few drops of urine enter the urethra; a message is at once

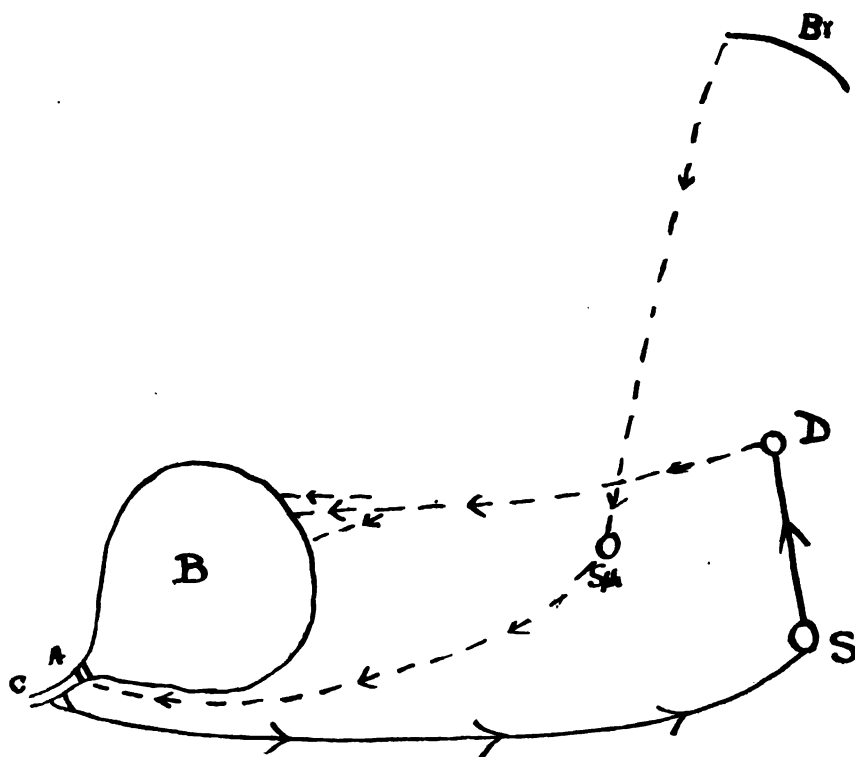


FIG. 3.

sent to the sensory center, which in turn stimulates the detrusor center, and micturition ensues. The brain need receive no message from the sensory center.

I have never been called upon to treat a case of psychopathic enuresis, and may I never be, if corporal punishment be as suggested the appropriate remedy. I can conceive no means better calculated to rivet the child's thoughts on his urinary apparatus, so as to intensify the mental inclination to a maximum. For such cases suggestion would at least supply a rational procedure. Liébeaut met with some amount of success by this method. He aimed at securing some degree of hypnosis, and then suggested to the child to get up at fixed hours to pass water, gradually prolonging the interval, until control was reestablished.

But over and above the influence of sleep, we have in enuresis to deal with instability or disturbance of some part of the nervous mechanism of micturition. In some cases we find an exalted excitability of the nervous centers so that the response to ordinary excitants is excessive, while in others with a normal nervous system we find irritable or irritated peripheral nerves that stimulate the center too strongly or too often. Thus the nervous system may be hit at the center, in

the cord or in the brain, or at the periphery, in the bladder or its neighborhood. Trousseau regarded enuresis as essentially a neurosis, and it must have struck every one that the sufferers are not of the dull, lethargic order of beings, but are for the most part mentally precocious children, whose nervous mechanism is ever ready to run riot. As might be expected, there is a close relationship of enuresis to the other neuroses of childhood, such as somnambulism, night terrors, and the multiple nervous manifestations of rickets and adenoids. Sometimes this nervous irritability is the remainder of some acute illness, or some prolonged drain on the health and strength of the child. In all these cases anemia is seldom absent, and one can readily understand how such a cause may increase the reflex excitability of the lower centers, so that they respond to minimal stimuli, or may lessen the functional activity of the higher cerebral centers, so as to diminish their inhibitory influence over the spinal centers. The anemia of childhood, though usually referable to bad hygienic conditions and improper feeding, is not infrequently traced to rickets, tuberculosis, rheumatism, and syphilis, and with such an association we may have an important lead in therapeutics. I have been particularly struck with the

frequency of rheumatism in the child or its parents, and its influence seems to me to be due rather to the rapid and intense anemia it produces than to any alteration in the acidity of the urine.

For one or other of these causes the sensory center in the cord is hypersensitive, and stimulates the detrusor center too strongly, while maybe the brain exerts too little energy in maintaining the tone of the vesical sphincter; and if by chance the vesical sphincter be organically feeble, there will be still less opposition to the expulsive force of the detrusor muscle. Thus in front of the nervous background with which we have to deal, there stand two main physical faults: on the one hand there may be excessive irritability of the muscular coat of the bladder, on the other deficient resisting power of the sphincter, or both may be conjoined. The most approved combinations of drugs, the most fashionable alkaloids, can hardly transform a temperament in a few weeks. A spell of running wild in fresh country air, a respite from lessons, a more liberal allowance of sleep, may succeed where medicine has failed to invigorate the nervous system. Where anemia is manifest one may often succeed with some light preparation of iron along with *nux vomica*, with or without adjuvant remedies, as the indications of the individual case suggest. If a rheumatic tendency is established it is well to give salicylates a trial, but not to the exclusion of iron. Now and again I have felt half-ashamed of myself for curing a case by having a crop of adenoids removed, and others unblushingly acknowledge the same success. I am quite clear that tea given to children at the evening meal is sometimes at the root of the disorder, and more than once I have been rewarded by forbidding it; and one cannot be too careful of the state of the digestive system, for like convulsions, enuresis may often be traced to some digestive derangement.

When there is reason to suspect abnormal excitability of the muscular coat of the bladder, belladonna should be given. Belladonna is useless as a specific, invaluable as an adjuvant remedy. It is futile to stake one's expectations on belladonna, when anemia is manifestly the prime cause of the derangement, while a combination of iron and belladonna will in all probability effect a permanent cure. The dose should be pushed to its physiological limits—that is to say, till dryness of the throat, dilatation of the pupil,

or even the specific eruption afford a danger signal. I am in the habit of commencing with ten to fifteen drops of the tincture three times a day for a child of four to five years, and increasing weekly by five drops to each dose till there is some sign either of abatement of the disorder or of physiological reaction. It is of the utmost importance not to abruptly relinquish the drug as soon as the habit is broken, or recurrence will almost certainly lead to disappointment. It is best to maintain for a week or so the full dose, and then gradually diminish the dose over a period of weeks.

Great irritability of the muscle coat is usually evidenced by an imperative call to micturition during the day, as well as by nocturnal enuresis. When the sphincter alone is feeble, there is no imperative desire, but utter inability to check the outflow at intervals even during the day. When weakness of the sphincter of the bladder is superadded to irritability of the muscular coat, no combination is so beneficial as that of belladonna and *nux vomica*; often it acts like magic. Other drugs, such as ergot and *rhus aromatica*, are extolled as substitutes for strychnine, but I have carefully tried both and found them inferior. In severely atonic cases ergot and strychnine may be given in combination. *Rhus aromatica* is most suitably prescribed in the form of the fluid extract with a little mucilage and water; given alone I have found it comparatively ineffectual, but combined with belladonna an excellent combination in some cases in which *nux vomica* has seemed undesirable. The use of the interrupted current has been advocated as a rational measure in these cases of atony of the sphincter, but I can offer no opinion of its usefulness, as I have never employed it myself, nor seen others do so. A disk electrode is placed on the symphysis pubis, attached to the positive pole, and a bougie, insulated except at its extremity, is passed up to the sphincter and attached to the negative pole.

Lastly, the fault may be in the peripheral nerves, that carry too vigorous impulses to the sensory spinal center, so that it acts incontinently in spite of itself. In all cases a careful and minute search should be made for an irritant in the urine, in the bladder, or in its neighborhood, to which it is intimately linked by the nerve plexus of the pudic. Such irritants will of course act at a great mechanical advantage in a neurotic subject, whose central nervous system is disordered.

The greater incidence of the disorder on the male sex seems to me to point to the relatively greater importance of these peripheral irritants, such as one would expect from the length and complexity of the male urethra compared with the female. High acidity of the urine is a well recognized cause, and in specimens that have been brought to me uratic deposits have sometimes been particularly abundant. Then a few drops of liquor potassæ with a little belladonna may be given, till litmus paper shows a neutral reaction of the urine. Nothing could be more prejudicial than cutting down the supply of liquid. Water should be freely given to diminish the concentration of the urine; or milk, one of the best of diuretics.

Other cases seem to depend rather on the increased quantity than on the altered quality of the urine. Thus enuresis is much more common in the winter months than in the summer; sometimes appears to be due to an excessive intake of liquids, and sometimes is a danger signal heralding the presence of diabetes or chronic nephritis. The early hours of the night at which enuresis most often occurs is opposed to its frequent occurrence from overdistention. In these cases it may be well to cut down the amount of liquid taken in the later hours of the day. Such children should be made to pass their water before getting into bed, and again when the parents go to bed, and if possible once again in the course of the night.

In some cases the irritant resides in the bladder itself, maybe in cystitis or calculus, conditions that render its muscle coat unduly sensitive. Such conditions in children are rare, and should be treated on the usual lines. There is also a condition of the bladder which, though more properly an effect than a cause of enuresis, serves to render the habit persistent: this is a contracted state of the bladder, so that it can only hold the smallest amount of urine, and must constantly relieve itself by overflow. In the daytime the child should be encouraged to hold his water as long as possible, so as to exert some distending pressure on the bladder-walls; or it may be necessary to have recourse to forcible distention by the hydrostatic pressure of any antiseptic solution. The treatment is analogous to dilatation of urethral stricture by means of bougies, and as in this latter case should be repeated at intervals so as to prevent recontraction.

Sometimes the external genitals are at fault; one most often finds either a simple

phimosis or preputial adhesions. Neither of these conditions in itself will probably cause enuresis, but only by reason of the balanitis that is set up by the retained secretion. Where preputial adhesions exist, these should be broken down, so that the smegma may be removed. Daily retraction and scrupulous cleanliness, aided by the use of a little lubricating oil, will usually prevent their recurrence. Phimosis may often be successfully dealt with by simple dilatation of the orifice, and in exceptional cases by circumcision. And to stay the surgeon's knife, I should like to put it on record that I have met more than one case of enuresis that had dated definitely from circumcision. This I conceive to be due to exposure of the sensitive glans penis.

Occasionally masturbation and enuresis coexist. Is the one the cause of the other, or is it a casual coincidence? No doubt the habit tends to center attention on the genitals, and may give rise to a psychopathic enuresis. Once or twice I have noticed an extreme hypersensitiveness of the deep urethra on passing a catheter, and the fancy has struck me that possibly repeated masturbation may render the urethra hypersensitive. If this be so, we can easily understand how the entry of a few drops of urine into the deep urethra would stir the spinal center into activity, and cause evacuation of the bladder. The sole justification of this theory is the success of treatment based upon it in a few cases. Local sedative treatment is indicated, such as application of cocaine to the hypersensitive part of the urethra, and daily passage of a catheter, so as to accustom the urethra to resist irritation. If bromides have any place in the treatment of enuresis, these would seem to be suitable cases for their exhibition. For my part I look with suspicion on any drug that deepens the slumber of the higher nervous system.

There is an intimate nerve relation of the bladder with its neighborhood, mainly in the ramifications of the pudic nerve. In this way threadworms, rectal polypi, a loaded bowel, fissures and other local derangements, and in the female vulvo-vaginal catarrh, seem to set some cases in motion. There can be no doubt of the malign influence of constipation, but I cannot say that I have found threadworms with greater frequency in the subjects of enuresis than in other children. There is no need to enlarge upon the appropriate treatment of these several conditions.



*THE USE OF PILOCARPINE IN SOME  
ACUTE INFECTIOUS DISEASES.\**

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In the study of the physiological action of pilocarpine, it is important to note that urinary solids are excreted with the hyperidrosis induced by the drug. That leucomaines, ptomaines, and possibly toxins, may be similarly excreted has been pointed out by several writers. The intense salivation that follows the administration of a full dose is a far more powerful means of eliminating toxic substances. Moreover, the observations of Sabbatani<sup>1</sup> seem to prove that pilocarpine has a diuretic action. Solomon Solis-Cohen<sup>2</sup> has found that this medication very much increases the diuretic action of sparteine. Clinical observation has convinced us that urinary solids, especially urea, are eliminated in increased quantities under its influence, as was first pointed out by Lauder Brunton. We are compelled to conclude, therefore, that this alkaloid is a potent means of ridding the organism of baneful material. Its value in uremia and dropsy is a long attested clinical fact.

But in enumerating the various sources of elimination, the stomach as an excretory organ should not be forgotten, and the vomiting and diarrhea which frequently ensue after a large dose of pilocarpine are due partly to the irritation produced by the excreted leucomaines and specific toxins.

Great importance, also, must be attached to the powerful cleansing effect on the faucial mucous membrane, which is produced by the outflow of several pints of saliva.

Wallstein,<sup>3</sup> Horbaczewski<sup>4</sup> and Wilkinson<sup>5</sup> have shown that pilocarpine induces a marked leucocytosis. The last writer also describes peculiar changes in the morphological and chemical nature of the oxyphile leucocytes; this, however, is as yet not known to be of any practical importance. But the increased formation of leucocytes suggests that phagocytosis may be promoted, and the production of alexins increased.

Pilocarpine causes enlargement of the spleen, according to Horbaczewski, and this is the more remarkable, since its stimulation of unstriated muscular fiber and the consequent reduction in bulk of other viscera is well known; therefore, this enlargement cannot be attributed to relaxation of the capsule and trabeculae, but must be referred to vascular fulness, and probably to some accumulation of white blood-corpuscles.

In fevers the effect of pilocarpine on temperature is marked, lowering it from one-half to three degrees, this fall ensuing within half an hour after profuse salivation. Reichert<sup>6</sup> holds that this descent in temperature is due more to the lessened production than increased dissipation of heat. No doubt the rapid elimination of the pyrogenic toxins is the chief factor to be taken into account.

We must be careful to distinguish between the primary and the secondary physiological effects of pilocarpine. The former are increased rapidity of the pulse and dilatation of the peripheral capillaries with a resulting diminished blood-pressure. The secondary effects are the diaphoretic and sialagogue influence. We endeavor to obtain these secondary symptoms in all cases. We have administered pilocarpine thousands of times, always with due caution, and have never noticed any depression that might be termed dangerous to life, although the family and attendants of the patient are often seized with panic.

Though the germ theory of disease revolutionized our ideas of pathology, and marked a tremendous advance in medical science, still we have as yet been unable, except in a few instances, to find potent germicides which shall act specifically without toxicity to the organism. The scientist, therefore, has turned to the study of the processes whereby the body overcomes infection, hoping to discover measures whereby cellular resistance may be increased. Already the discovery of antitoxins, alexins, globulicides and agglutinins opens a broad path for the advance of the thinking mind; and the hope is cherished that the production of perfect immunity to all infectious diseases may be the ultimate result of scientific research.

At present our means have not been sufficiently perfected to produce this ideal state. We must therefore resort, in the treatment of most diseases, to means which, while not curing the disease, still modify its course and minimize the danger to the integrity of the tissues and the functions.

\* Read before the Bethesda Pediatric Society of St. Louis, Dec. 10, 1897.

It is still open to grave doubt whether a fully developed infectious disease can be aborted by therapeutic measures other than antitoxins, and therefore in the treatment of any infection it is folly to use powerful antiseptics, which cannot possibly destroy the whole infection, and may be very injurious to the tissue cells; much wiser is it to allow the disease to take its natural course. The symptomatology of most infectious diseases is the physiological action of the specific toxins generated by the actively growing pathogenic bacteria. Under the stimulus of the toxins the antitoxins are gradually formed, and thus a stage is reached where the latter overcome the former. In most diseases the symptom-complex is the result of many poisons, frequently due to a variety of micro-organisms, and even to autointoxication, so that artificial antitoxins would necessarily have to be very complex in constitution to meet all possible exigencies, and their preparation for most diseases oversteps the limits of our present chemical and physiological knowledge.

We are compelled, for a time at least, to allow the cure of the infection by the natural processes, but in all cases the indication is to prevent the accumulation of toxins to such an extent as to act deleteriously on the various organs—even destroying the cellular elements—instead of acting as a stimulant to the formation of antagonistic principles.

Pilocarpine is the most effective agent to stimulate the excretion of noxious substances, without at the same time adding to the general toxemia. In the early stages of most acute infectious diseases a marked insufficiency of renal activity occurs, as shown by analysis of the urine, so that a retention toxicosis increases the complexity of the symptoms. In this stage the value of sudorific baths is well known, but more powerful still is the action of this alkaloid in removing poisonous substances, which the paralyzed renal cells refuse to excrete. Pilocarpine is particularly indicated in those infectious diseases in which the fauces are the seat of bacterial growth. The swollen mucous membrane is depleted, pseudo-membranes loosened and washed off, and the bacteria carried away in the flood. The direct cellular resistance to the action of the bacteria is also enhanced by this drug, and it is to be remembered that the increased formation of leucocytes may aid in bacterial destruction by phagocytosis and by alexin production.

Since Brieger has found tetanin in the

saliva, we may well conclude that the time-honored custom of treating acute infectious diseases by inducing salivation was in some respects at least a salutary one, for by the salivary glands, whose secretion is normally albuminous, can the toxalbumins be most readily eliminated. As a matter of fact we know that the urine does not show the presence of toxalbumins, unless the renal function has become damaged to such an extent that the urine is albuminous.

Perhaps an equally important effect of pilocarpine in acute infectious diseases is to be found in its presumed action upon the cells of the liver—for it stimulates more or less every gland cell in the body. The increase of urea points indubitably to an increase of function in the liver cells in one direction, and we may safely believe that its toxilytic function, of which we know with certainty in respect of the alkaloids, is tremendously increased by the administration of pilocarpine. It is credible also that the lymphatic glands may be favorably influenced in their defensive work by the action of this drug.

*Administration.*—The alkaloid should in all cases be used; for the infusion and fluid extract of jaborandi contain besides pilocarpine the alkaloid jaborine, which is antagonistic to the action of the former base, resembling atropine in its action; consequently a very large dose of the crude drug must be given to produce diaphoresis and salivation. It is to the use of the whole drug that many of the cases showing toxic symptoms must be ascribed.

Pilocarpine is prescribed in the form of one of its salts, as the hydrochloride or nitrate. The dose ranges from one-eighth to one-fourth grain. The smaller dose should first be used, and the drug must be pushed until its characteristic effects are produced. It is worse than useless to give doses insufficient to produce the secondary symptoms. Tolerance is soon established, and in certain persons we must gradually increase the dose to the maximum. The physiological action commences within fifteen minutes and lasts from one to three hours. Children and infants need proportionately larger doses; the dose as calculated by Cowling's rule must frequently be doubled. Under one year the weight of the infant is taken for the proportionate dose. In general an infant trebles its weight by the end of the first year; consequently an infant at birth receives one-third and at six months two-thirds of the

dose given to a baby of one year. When speedy action is desired, or the stomach is irritable, the subcutaneous injection is to be preferred; but in most cases it can be given by the mouth. In nearly all infectious diseases the administration should be continued for one or two days only, or until the toxicolytic and eliminative organs are thoroughly capable of performing their function unaided. In erysipelas, however, its continued use for several days is necessary.

We find most physicians hesitate to use pilocarpine, giving as a reason that they fear depression of the heart's action and collapse. Personally, we can say that we have never had occasion to regret its use; however, an insufficient dose of the pure alkaloid may accelerate the pulse and produce flushing of the skin, without any amelioration of the symptoms whatever. Then, again, the drug *jaborandi* may bring about a condition closely simulating atropine poisoning. As a result of excessive depletion—for pilocarpine stimulates more or less every secreting cell in the body—we may have symptoms of collapse; but its action can be instantaneously arrested by a hypodermic injection of atropine, and the system rehabilitated by strychnine.

The contraindications to its use are offered by all diseases producing death by suffocation, and conditions of the heart in which sudden failure might be apprehended—a thing rarely to be feared in childhood in the first stage of an acute infection. Any apprehension of pulmonary edema would form a contraindication. The slightest approach to coma—as in the eclampsia of childhood and of the puerperal state—offers a strong bar to its use. In diphtheria it should not be used after the advent of paralytic symptoms, which may be expected on the sixth day at the earliest. In some patients vomiting is a very distressing effect of the drug. In every case its physiological action is opposed to the digestion and absorption of food, and its administration therefore must be uninterrupted if it has to be prolonged.

*Diphtheria.*—In a previous paper, published in the *Virginia Medical Monthly*, one of us has urged the employment of pilocarpine as an adjuvant to the use of antitoxin in diphtheria. Further experience has only strengthened the position taken then. Complications due to the streptococcus need not be feared when this alkaloid is used. A recent pseudo-membrane is soon washed off by the flow of saliva, and the tonsils and fauces appear smooth and healthy. Local treatment is thus

dispensed with. Moreover, the free salivation prevents the overaccumulation of the diphtheria toxalbumin, while the organism is becoming immunized by the antitoxin administered. The objection has been raised that the antitoxin may be similarly excreted with the toxin, and consequently a less perfect immunization would result; but this theoretical objection is silenced by the laboratory experiments cited in this paper.

An important effect is the excretion by the skin and salivary glands of normal excrementitious substances, thus relieving the renal insufficiency. The sudden advent of convalescence, due to the action of antitoxin, throws a tremendous amount of catabolic products on the emunctories, and the weakened kidneys may not successfully remove them; so here again salivation, diaphoresis and gastro-enteric elimination are salutary. Paralysis and nephritis are very rare sequelæ, when antitoxin is synergized by pilocarpine and administered early in the disease.

In laryngeal diphtheria its use is fraught with danger, unless the case be closely watched. However, our friend Dr. Auler has had phenomenal success in just such cases under the free use of pilocarpine, and Sziklai very strongly advocates its use in croup. In severe cases of diphtheria we may have four intoxications to fight, against only one of which does the antitoxin avail us, to wit: (1) that resulting from the Klebs-Loeffler bacillus; (2) that resulting from the pyogenic organism; (3) that resulting from the putrefaction of the pseudo-membrane (perhaps also from necrosis of the underlying tissues); (4) autointoxication.

The objection that might be urged against the use of antitoxin alone is that it acts so slowly, allowing the toxemia unhindered sway for many hours, and then meeting the enemy in one form only. In pilocarpine we find a remedy which admirably supplements the peerless antitoxin. Against a coccus invasion of the throat it is specific, whether in diphtheria, scarlet fever, or influenza.

Of the reality of putrefactive alkaloidal intoxication we are satisfied, not only by the horrible stench, but by the totally changed aspect of the case. The initial high temperature falls on the second or third day to 100° or thereabouts, whilst the pulse becomes more rapid, perhaps slower, but always more feeble. The countenance assumes a peculiar mottled, pallid hue, whilst the patient sinks into a profoundly apathetic condition. It

used to be said that this was due to the pressure of the swollen glands upon the cervical vessels, but of this there was never any proof. Convulsions never occur in these cases, for the paralyzing, stupefying ptomaines hold sway until death. Pilocarpine changes this whole scene within a few hours by eliminating the alkaloids, and perhaps stimulating toxilysis in the liver.

Again, at an earlier stage we are warned of the existence of an overwhelming autointoxication—a retention toxicosis—by the behavior of the kidneys. At the very outset, with a high temperature and active delirium, perhaps convulsions, the urine is almost colorless, and of very low specific gravity. The leucomaines as well as other waste products are, we know, being elaborated in greatly increased amounts, and yet the kidneys refuse to excrete them. Pilocarpine changes this in short order, as shown by the speedy amelioration of the symptoms, and the change in the urine to a dark color and to a higher specific gravity.

Lastly, pilocarpine assists antitoxin in its own proper warfare against the toxalbumin of the diphtheria bacillus, as shown by the fact that we get much more speedy returns from our antitoxin, and by the further fact that we seldom or never are called upon to repeat the injection. Of its signal and marvelous efficacy in this particular the evidence is given by the laboratory experiments we shall cite.

It has been proven that the tetanus toxin is excreted by the salivary glands, and Yarrow has saved animals into which he had injected a fourfold lethal dose of rattlesnake venom, by the use of jaborandi. One of us has made experiments in the laboratory on guinea-pigs, the report of which is added here. This gives unanswerable proof of the value of pilocarpine in diphtheria.

It is well known that in an animal that has received a lethal dose of diphtheria toxin, counteracted by a simultaneous dose of antitoxin, a very slight surplus of toxin proves fatal; in other words, death occurs under these circumstances from a quantity of toxin, which alone would hardly have elicited any reaction whatsoever. As an instance, if 0.1 cubic centimeter of toxin (being the fatal dose) is antagonized in a 250-gramme guinea-pig by 0.1 cubic centimeter of a 1:1000 dilution of antitoxic serum (of 100 units to the cubic centimeter), the addition of 0.02 cubic centimeter of toxin to this dose of 0.1 cubic centimeter is sufficient to kill

the animal within twenty-four to forty-eight hours.

In this experiment 0.02 cubic centimeter of toxin killed the animal, while administered alone the dose would not harm it in any way. This interesting fact was utilized for deciding what effect pilocarpine had in saving the animals from the lethal effect of a surplus of toxin over antitoxin.

Two guinea-pigs, in the first experiment, were injected with 0.12 cubic centimeter of normal toxin, which was mixed with 0.1 cubic centimeter of a 1:1000 dilution of antitoxic serum of 100 units strength (really the serum contained only 95 units to the cubic centimeter). At the same time one of the two received an injection hypodermically of one-thirtieth grain of pilocarpine hydrochlorate. Both animals were kept under absolutely the same conditions. The pilocarpine guinea-pig remained healthy and did not even show infiltration at the site of injection, while the other animal died in thirty-six hours. The post-mortem revealed the typical lesions of diphtheria poisoning.

In another experiment two animals were treated in the same way, only the pilocarpine injection was made twelve hours after the toxin-antitoxin injection. The result was practically the same, except that in this experiment the death of the first animal occurred after forty-eight hours. No infiltration was found in the pilocarpine animal.

There was no time to follow up these investigations any further; the urine ought to be examined, temperatures taken, etc. It seems to us, however, that it is not unreasonable to conclude that the administration of pilocarpine effected the excretion of the surplus toxin in time to save the organism from its assaults—that means to prevent it from acting on the nerve centers.

Since these experiments have been made we have adopted the custom of administering small doses of pilocarpine to goats and cows, which are being immunized against diphtheria, and the mortality of which formerly was quite large. Only the most beneficial results can be reported from this custom, no death having occurred since that time. Furthermore, the increase in antitoxic potency of the serum and milk of these animals is in no way impaired by this practice.

Where in the whole range of experimental medicine (outside of the antitoxins) can the life-saving efficacy of any drug be proved with such mathematical precision?

The literature on the subject of pilocarpine in diphtheria is becoming quite extensive. Originally suggested by Senne,<sup>9</sup> it was strongly advocated by Guttman<sup>10</sup> and Lax.<sup>11</sup> An enthusiastic supporter is Sziklai,<sup>12</sup> who uses it in all inflammations where an exudate is present. Barsky<sup>13</sup> also reports favorably upon it. We find Benesch,<sup>14</sup> Herschfeld,<sup>15</sup> Ketchum,<sup>16</sup> Faludi<sup>17</sup> and others recommending it. Archambault<sup>18</sup> and Laschkewitz<sup>19</sup> several years ago condemned its use, before antitoxin was used.

*Diphtheroidal Angina.*—In all inflammations of the pharynx and fauces accompanied by an exudate pilocarpine is a sovereign remedy. In follicular tonsillitis it is much more effective than benzoate of soda or the salicylates. The depletion, with the thorough washing, suffice to cure the disease inside of two or three days. The fever also rapidly falls and the general symptoms soon ameliorate.

*Scarlatina.*—The experiments in scarlet fever with antistreptococcic serum have not been encouraging, and until a more perfect immunizing agent is found, remedies which meet the general indication of toxemia will necessarily be resorted to. Such a remedy we have in pilocarpine, and we therefore urge its employment in this dreadful exanthema. We believe, with others, that the uncomplicated scarlet fever is exceedingly ephemeral, and the continuance of fever and the production of sequelæ are due to the associated infections by pyogenic micro-organisms.

The dangers of this disease may be classified into those symptoms, complications and sequelæ due to a complex toxemia, and second, those due to faucial and pharyngeal inflammation. In the former class belong the severe nervous and cardiac symptoms, the nephritis, and the inflammation of the serous membranes. By the early and constant elimination of the toxins these dangers may be successfully obviated. The kidney which is so susceptible to the scarlatinal poison refuses at the outset to excrete the toxins, and more than that, is inadequate to rid the body of the normal urinary constituents. And here we wish to protest on theoretical as well as practical grounds against the administration of potassium salts in renal inadequacy, for we know that the potash salts are the most important contributors to uro-toxicity, and their ingestion while stimulating the kidney for a short time must necessarily increase the toxicity of the blood. It is much better to eliminate the toxins as well as some of the

normal urinary constituents by other channels, until the kidneys resume a stronger activity.

Marked as is the effect on the general symptoms, the favorable influence on the faucial inflammation eclipses it. The swollen mucous membrane is very much depleted, diphtheroidal exudate is loosened, and the intense suffering is relieved. Streptococci are washed off from the mucous surfaces and the toxins in the blood are thrown off by the salivary glands. The cervical lymphatic nodes, therefore, receive less poison and their subsequent inflammation and suppuration is prevented. If these nodes are found infected, the depletion of the mucous membranes and removal of the poisons put them in the best way of recovery. We have not encountered any cervical abscesses since we commenced the use of this remedy.

Another very serious sequel; the occurrence of which this treatment prevents, is suppurative otitis. The pharyngeal inflammation extends along the Eustachian tube, causing stenosis, and the accumulation of purulent exudate in the tympanum. But under the influence of pilocarpine the mouth of the tube remains patulous, as the swelling of its lining membrane is diminished, and drainage is not interfered with. We have not had a single case of otitis media suppurativa in the many cases of scarlet fever that we have had under our care in the last three years.

About twenty years ago one of us used pilocarpine in scarlatina without success, owing to timidity in pushing the drug to its physiological effect. It is well to emphasize that the higher the temperature the more pronounced the onset of the infection and the larger the dose that must be given. In these severe cases the pulse becomes much stronger under the influence of a full dose.

We claim, therefore, that pilocarpine meets the requirements of the disease better than any known drug, and in urging its extended use we feel confident that the mortality and sequelæ will be greatly reduced.

*Influenza.*—The bacillus of Pfeifer is universally recognized as the prime factor in the etiology of influenza, but as in scarlet fever, the anatomical lesions depend on secondary infections. The streptococcus is commonly present in the various lesions. Considerable doubt exists as to the site of the primary bacillary growth in all cases, but in our experience the fauces in the vast majority of cases is the infected area. A rhinitis is also a common concomitant lesion.

The angina is especially to be noted, since it presents characteristics which are diagnostic. On inspection we find the posterior and lateral wall of the oro-pharynx, also the pillars of the fauces, tonsils, uvula, and the free border of the soft palate, exhibiting a cardinal red, swollen, succulent and velvety appearance. The inflamed area, on the soft palate especially, shows a distinct line of demarcation from the healthy mucous membrane. The inflammation is bilateral and perfectly symmetrical.

The diagnostic features are the symmetry, the distinct line of demarcation, and in the severer cases the peculiar velvety, succulent appearance.

It is in this variety of grippe that pilocarpine is often efficacious. The headache, rachialgia and pain in the limbs are speedily relieved, the fever is reduced, and the attack frequently aborted; its whole action being similar to that in other anginas.

**Pneumonia.**—The use of pilocarpine in pneumonia has been enthusiastically advocated by Sziklai;<sup>31</sup> in fact, this author urges its use in all inflammations accompanied by any fibrinous exudate. He claims for it, first, a mechanical action, the increased secretion carrying off the exudate; and second, a chemical action, by which is meant the destruction or dissolution of fibrin.

On theoretical grounds it is difficult to understand how pilocarpine can increase the secretion in the air-vesicles, since these are not supplied with glands. The only possibility to be considered is the increase of bronchial secretion and this flowing backwards into the vesicles. This must certainly increase dyspnea and perhaps aggravate the symptoms enormously. But, happily, it is only rarely that the bronchial mucus can be increased to such an extent as to fill the unaffected vesicles.

Resorting to chemical activity to explain the removal of fibrin can be objected to on the grounds that we have no proof of such action in other regions.

We believe on practical grounds that Sziklai has gone too far in his enthusiasm to laud the action of this drug. Yet we must admit that he has found an earnest disciple in Poulet,<sup>32</sup> who reports 104 cases of pneumonia due to influenza treated by pilocarpine with only four deaths. He gives about five-sixths of a grain at a dose, giving one dose each day for two successive days in the early stage of the disease.

Ernest Glass,<sup>33</sup> however, as a result of a

careful analysis of eighteen cases treated by pilocarpine, does not find any benefit, even claiming an extension of the inflammatory process under its use. He believes these results do not justify further trial.

We have tried pilocarpine in a few cases of pneumonia. When the disease is well advanced it certainly is a dangerous remedy. Yet we are convinced that we have aborted a frank pneumonia by a few full doses given at the outset. Probably the same explanation as in other acute infectious diseases pertains here.

The question of pilocarpine in pneumonia is, therefore, still *sub judice*.

**Erysipelas.**—Da Costa's treatment of this disease is becoming more and more the established practise. Anders<sup>34</sup> and Salinger<sup>35</sup> have given their support to it. Barr<sup>36</sup> has reported forty cases treated by pilocarpine with excellent results. J. W. Mitchell<sup>37</sup> and Wheatland<sup>38</sup> also report favorably. We do not hold that the disease can, except in very mild cases, be entirely aborted by the use of this alkaloid; but we do claim that local immunity is more quickly induced, while the inflammation continues to spread at the borders. The swelling and pain are very much diminished, the fever runs much lower, and danger to the nerve centers from toxemia is almost *nil*. We usually continue the administration as long as the disease continues to spread, combining or alternating its use with full doses of camphor, which has a marked effect on the temperature.

Little or no local treatment is necessarily required, but any of the customary applications may be used. Having seen two cases of indelible staining of the skin by ichthyol, we fear to use this application about the face.

**Rubeola.**—The classical treatment of measles is by diaphoretics and diuretics. We have found pilocarpine to be the best remedy to prevent dangerous complications and sequelæ of this affection.

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### THE TREATMENT OF PULMONARY TUBERCULOSIS.\*

BY C. R. P. FISHER, M.D.,  
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The almost utter helplessness of the medical profession, when confronted with a case of pulmonary tuberculosis, has long been a reproach to the practitioners of the healing art. The fact that a case of consumption in the early stages semi-occasionally recovered through removal to a more fitting climate only accentuated that reproach, since it only proved we were powerless to stay the ravages of the disease by any other means. The further fact that autopsies, made in cases of death from other causes, frequently reveal *healed* cavities in the lung is likewise a commentary on our helplessness, for we are ignorant of the means by which such healing was accomplished. In treating a case where the patient, through force of circumstances, could not avail himself of the advantages of climatic treatment, we have been obliged to content ourselves with general supporting treatment, keeping up the general health and nutrition as far as possible, satisfied if by such means we could postpone the inevitable end for a few weeks or months.

The great and increasing prevalence of this disease makes the above state of affairs all the more deplorable. In New York City, where the Health Board requires notification of cases of tuberculosis, there were reported to the Board during the first three months of 1897, *2422 cases and 1541 deaths*. There is every reason to believe that it is as fre-

quently met with in many other cities, where statistics are not so readily obtainable owing to the fact that notification is not required. That the disease finds its victims in the country as well as in the cities the country practitioner knows only too well—the emaciated, stooping frame, the sallow complexion, the hollow cough, are but too well known to us all. No class is exempt, no walk of life is free from the scourge; we find it alike in the hovel of the poor and the mansion of the rich. "Hope springs eternal in the human breast," and the knowledge that rational medicine offered so little in the way of alleviation and cure has always made the phthisical patient an easy prey to the conscienceless charlatan, whose glaring advertisement of a "Sure cure for Consumption" can be found in the columns of nearly every journal in the land.

Thanks to the labors of the bacteriologists the etiology of the "Great White Death" is no longer unknown to us, and it was but natural that with the discovery of the cause our hopes of finding a cure should be raised to a high pitch. The demonstration of its contagiousness has stimulated work along the line of prophylaxis, so that advanced students of public hygiene are already discussing the possibility of stamping it out; but with the patient—the unfortunate mortal who is already in the clutches of the destroyer—the question is not "Can tuberculosis be *prevented*?" but "Can tuberculosis be *cured*?" Personally, I believe that *in the large majority of cases in the early stages pulmonary tuberculosis can be cured*.

We all remember the *furor* created a few years ago by the announcement that Koch had discovered the long sought for specific for consumption—how eagerly it was taken up by the profession, how reluctantly we were obliged to confess to negative or even harmful results. Yet Koch was upon the right track, although his original tuberculin was not a success, and while the men in active practise were obliged to lay it aside, a few earnest experimenters have gone on with the work, believing that success lay in this direction. Klebs and von Ruck in particular have labored earnestly, and have succeeded in preparing a purified tuberculin which produces results far beyond any other treatment within my knowledge.

Having a tubercular patient some four years ago, who had tried climatic treatment (Colorado) without benefit, if not, indeed, with harmful results, I sent him in the fall of

\*Read before the Somerset County (N. J.) District Medical Society, Jan. 27, 1898.

1895 to Asheville, N. C., placing him under the advice and treatment of Dr. von Ruck, who administered antiphthisin during the following winter. The results were so gratifying that I determined to test the remedy in my practise here, and have done so in six cases, brief histories of which I present herewith. In these histories I have omitted details of other treatment—in all of them general supporting and tonic treatment was carried out. These cases were all treated at home, with either antiphthisin (Klebs) or, what I much prefer, the purified tuberculin (von Ruck), the latter producing far less irritation at the site of injection, thus rendering the treatment less painful to the patient.

CASE I.—Male, aged thirty. This case, while perhaps not coming strictly under the head of cases treated *entirely* at home, possesses such interest as showing what can be done in rather advanced cases (and having been treated at home at intervals since May, 1896) that I introduce his history here. He had a severe attack of grippe in January, 1894, from which recovery was very slow. He made a short trip to Florida in March, and took a severe cold on his return; had very profuse pulmonary hemorrhage in April, followed by tubercular peritonitis. He was ordered to Colorado in September, and returned in June, 1895, worse than when he went. Cough was constant, expectoration free and laden with tubercle bacilli. He was kept at home on general treatment until September, when I sent him to Asheville, and placed him under the care of Dr. von Ruck, by whom he was treated with antiphthisin. Patient returned in May, 1896, very much improved; cough and expectoration nearly gone, chest sounds improved, temperature and weight normal. He has attended to business here since then, with the exception of the month of March, 1897, when he was again sent South as a precautionary measure. A curious circumstance about this case is that three or four times since his return he has had attacks of ordinary intermittent fever; the resulting high temperature seemed each time to light up the old lung trouble, as evidenced by immediate return of cough, expectoration, and râles over the affected area, but each time three or four weeks' treatment with the tuberculin removed all these symptoms, and he goes along nicely until some other slight intercurrent illness disturbs the nutrition and temperature.

CASE II.—Male, aged thirty. Taken with grippe March 12, 1896. History of gradually

failing strength during winter; severe pulmonary hemorrhage April 19; slight dulness and moist râles over part of upper lobe of left lung; copious night sweats. Commenced treatment with tuberculin May 13; at that time temperature ranged from 98.4° to 99.4°; weight 159 pounds. Treatment continued to July 28, when temperature was 97.4° to 98.6°; weight 168½ pounds; no night sweats; no physical signs. He resumed work as a bookkeeper in New York in September, and has not lost a day since. He is now apparently in perfect health, and weighs 170 pounds. This case I consider absolutely cured.

CASE III.—Male, aged about fifty, apparently in good health until August 9, 1896, when he had a severe hemorrhage from the lungs. Sputum mixed with blood until August 20. Lungs examined on September 7. There was slight dulness on percussion over left apex, crepitant râles, prolonged expiration; very little cough; night sweats; temperature 98° in morning, 99.6° in evening. Commenced using antiphthisin on September 16. Patient insisted on going to his business in New York every day, and in all kinds of weather, and absolutely would not take reasonable care of himself. Nevertheless he improved, appetite returned, cough diminished, night sweats lessened and ceased finally about November 1. Treatment continued until December 24, when he objected to its further use. At that time his weight had increased to normal, appetite and color good, and he expressed himself as feeling perfectly well; there was, however, a slight cough still, and roughened respiratory sounds over affected area. He was urged to return later for another course of tuberculin, but he did not do so, and was lost sight of until his death, which occurred suddenly, from hemorrhage, on July 14, 1897.

CASE IV.—Female, aged thirty-five; anemic since childhood; very delicate; slight hacking cough; dulness over right apex; prolonged expiration; loss of flesh; temperature rising to 99.6° in the afternoon. Commenced treatment November 7, 1896; continued improvement till July, 1897. The dulness has disappeared; there is now no cough; temperature and weight normal. This patient I consider cured, though owing to naturally feeble blood-making power she is still under observation.

CASE V.—Male, aged forty. Slight hemorrhage in June, 1896. He came under observation in October, when he had hacking



cough with loss of strength, was steadily losing weight, and had chronic pleurisy over lower lobe of right lung. Commenced tuberculin October 14, 1896. Improved very slowly during the winter. In May the cough had almost entirely disappeared; he had increased in weight to above the normal average; but there were still some friction sounds over affected lung. This man is doing outdoor work every day in all kinds of weather, and is up to his normal strength and weight. While I do not consider him cured, he can be classed as greatly improved.

CASE VI.—Female, aged forty-four, giving a previous history of semi-invalidism since typhoid fever in early womanhood, slight pulmonary hemorrhage in 1885, and chronic ulceration (tubercular?) of neck of bladder for many years. She came under treatment in April, 1897. Had cough, loss of appetite, strength, and weight; prolonged expiration over both apices; evening temperature 99.8°. Treatment continued until July, when both the general condition and the physical signs had so much improved that it was discontinued until October, when it was resumed for two months, as the patient had contracted a severe cold. At this time her cough has almost entirely disappeared, temperature is normal, no physical signs excepting slightly prolonged expiration, weight above normal, appetite and color good. Very much improved, but still under observation.

Of course the use of the tuberculin does not obviate the necessity for using every other means in our power to improve the general condition of the patient. We do not throw aside our sprays, stimulants, concentrated nourishment, etc., in treating a case of diphtheria because we are using antitoxin; so in treating a case of pulmonary tuberculosis, while we use the purified tuberculin, we must also see to it that the patient must be well nourished, that his digestion must be as good as possible, that he must be properly clothed, must take the proper kind and amount of exercise, must avoid taking cold, must have as much fresh air as possible—in short, we must exercise a judicious supervision over his whole mode of living. The key-note is: plenty of proper nutrition to make good blood, and plenty of fresh air to keep that blood properly oxygenated.

I was careful to say in the beginning that I believe that cases *in the early stages* can be cured; no remedy can replace lung tissue which has already been destroyed. It is possible, of course, to benefit advanced cases,

to ameliorate their condition, perhaps to lengthen their lives; but unless the inroads of the disease can be stayed while there is yet sufficient healthy lung tissue to do its work properly, a *cure* is manifestly impossible.

"One swallow does not make a summer," and I am well aware that six cases is a very small number upon which to base any conclusions; but it seems to me that they are valuable both in showing the good results of this treatment and also in showing that these results can be obtained *at home*. Of course climatic treatment is of great benefit where patients can afford to avail themselves of it, but unfortunately many of our cases are so circumstanced as to render it impossible for them to go to Colorado, California, the Adirondacks, etc., nor can they all avail themselves of the advantages of treatment in a sanitarium, though this is undoubtedly to be recommended in suitable cases.

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#### ESOPHAGOTOMY FOR JACKSTONE IN THE UPPER ESOPHAGUS; DEATH FROM EXHAUSTION.\*

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By W. W. KEEN, M.D.,

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Ella D., aged thirteen months, was admitted to the Jefferson Hospital March 30, 1897. At five o'clock on March 27, while on the floor with other children, the child was noticed to have something in her mouth. A moment later she strangled. The mother attempted to clear the throat with her finger, with which she could feel a foreign body, but could not remove it through the mouth. She, therefore, tried to push it down into the stomach. Solid food was given the child in order to facilitate its being swallowed. The child was unable, however, to swallow the solid food and only took the breast milk.

On the 29th of March the child was first brought to the out-patient department, and I saw her. The mother stated that she had swallowed a jackstone. A most careful examination of the throat in the laryngological department did not reveal any such foreign body, nor did external palpation. I did not attempt to withdraw the body or to probe for it, but had a skiagraph taken immediately by Professor Coplin. This showed the jackstone

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\* Read before the Surgical Section of the College of Physicians, April 9, 1897.

opposite the bodies of the fourth and fifth cervical vertebræ. The next day the child was brought to the hospital and operated upon. The finger could not touch the jackstone, but a pair of curved forceps for foreign bodies in the urethra were found to serve the best purpose. With these the foreign body was caught several times both by Professor Hearn and myself, but it was so firmly embedded that by no possibility could it be extracted. The choice then lay between esophagotomy and gastrotomy. The ingenious snare of Dr. A. C. Wood was tried, but it was impossible to get the whalebone bougie past the jackstone; it seemed entirely to fill the esophagus. The child had a very short neck, but I finally decided to do esophagotomy in view of the high position of the jackstone.

An incision was made in the left side of the neck; the sterno-cleido-mastoid and the vessels were drawn outward and a large arterial branch, presumably one of the thyroids, and a large vein were ligated. These were the only two vessels requiring ligation. The recurrent laryngeal nerve was looked for, but was not seen. As soon as the trachea was discovered and back of it the esophagus, the rounded knob of the jackstone was perceived, both by touch and sight. The tissues of the esophagus around it were already beginning to slough. An incision was made over the foreign body, and it was extracted with considerable difficulty and as slight laceration of the parts as was possible. The wound in the esophagus was closed by three catgut sutures and the external wound was packed with iodoform gauze. At the end of the operation the child was very comfortable and in good condition.

The child was fed every four hours for forty hours by the rectum with milk, and twenty drops of whiskey. On April 1, 1897, at 6 A.M., the child nursed for the first time and took food very well. A slight amount of milk passed into the wound, necessitating the change of the dressing three times in the twenty-four hours. The child did not seem to be particularly hungry, fretful, or restless, and I saw no reason to suppose it would not do well. The wound was doing admirably. At 3 A.M., on April 2, she became very restless and died at 3 P.M., apparently from exhaustion. The highest temperature immediately after the operation was 99.6°, but on April 1 it rose to 101.4°.

The two points worthy of attention in this case are, first, the method of removing the obstruction, and secondly, the cause of death.

Although the child's neck was very short and fat, I decided on esophagotomy on account of the high position of the jackstone. The operative result showed that this was the better plan. I doubt much whether in so young a child the jackstone could have been safely removed by the method adopted by White and Wood in their two cases (*University Medical Magazine*, June and October, 1896). There would have been very severe laceration, I think, of the esophagus above or below the obstruction.

For two days after the operation I fed the child by the rectum, and as she seemed entirely satisfied, was not restless, fretful, or in any other way exhibited signs of hunger, I did not deem it best to feed by an esophageal tube. I regretted afterwards that I had not done so. The child took the breast milk on the sixth day very well, but did not show any special signs of hunger or exhaustion till twelve hours before death.

#### REMOVAL OF A CANCEROUS THYROID.

REVERDIN (*Journal de la Suisse Romande*, Dec. 20, 1897) operated upon a malignant growth of the thyroid because of the dyspnea produced. Adhesions prevented complete removal; there was much bleeding; patient died the next day. Microscopic examination showed that the growth was sarcomatous.

Important diagnostic signs of malignant tumor are dysphagia, radiating pains, edema of the thoracic walls and upper portion of the sternal region. Dysphagia is sometimes caused by retro-tracheal simple goitre, but is rarely absent in malignant neoplasms. The patient did not complain of dysphagia, but autopsy showed the growth extended backward between the trachea and esophagus, limiting mobility of the latter by adhesions. Dyspnea was most pronounced. A colloid growth existed before, but the patient had never noticed the tumor. There was no edema of the external parietes, and thrombosed veins were not encountered during operation. The jugular vein was free; the carotid artery was invaded. Rapid development of paralysis of vocal cords by compression, recurrent radiating pains towards the ear, rapid emaciation and marked interference with respiration were all noted.

When this disease manifests its characteristic symptoms it has acquired such extensive adhesions and has so widely infiltrated that complete removal is exceedingly dangerous to life, and not likely to arrest the disease.

# The Therapeutic Gazette

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## Leading Articles.

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### THE TREATMENT OF NEPHRITIS.

Acute nephritis is by no means so frequently met with as the more chronic inflammatory conditions which produce such disastrous results; yet it is sometimes seen, either as the result of the ingestion of irritant substances or of the presence of severe infections. Some persons have gone so far as to assert that acute nephritis may result from severe exposure. Whatever its causes may be, if it is of a severe character a train of symptoms familiar to experienced clinicians assert themselves. There is a condition of malaise, with anorexia and perhaps nausea and vomiting, while if the condition of the kidneys be grave these symptoms may be followed or supplanted by violent headache, followed by delirium, convulsions, and coma, during which the heart will be found acting laboriously and the pulse will be of high tension. The urine will also be decreased in quantity and the patient may develop rather a typhoid appearance. This condition may last, if not so grave as to pro-

duce death early in its course, for several weeks, and at that time, unless the case has been badly treated or has been unusually severe, recovery takes place, or at least the patient becomes so improved in health as to consider himself well.

The most important thing to do for any patient who is suffering from mild or severe acute inflammation of the kidney is to insist upon absolute rest, the patient remaining in bed not only for the rest, but also in order that the surface of the body may be protected from draughts and colds. A liquid diet, consisting largely of milk, should be insisted upon, and this liquid diet has the additional advantage that it will tend to increase the quantity of urine and so help to wash from the kidneys the effete materials which it is the function of these organs to eliminate. On the other hand, it must not be forgotten that during the course of acute nephritis the kidneys are unable to eliminate as much fluid as they can do in health, and the too free administration of liquids under these circumstances may to some extent aid in increasing the tendency to dropsy. For this reason scantiness of the urine in acute nephritis is not to be considered as a very grave symptom, but if it becomes exceedingly scanty and does not show evidences of being thoroughly laden with excrementitious matter, and if it seems probable that this failure of action on the part of the kidneys is due to congestion, it then becomes the physician's function to relieve that congestion by one or several measures. Dry cups or even wet cups may be applied over the lumbar region, provided that hot compresses applied to this area for an hour or two fail to relieve the congestion. Or in other cases it may be well to cause a flow of blood to the surface of the entire body by placing the patient in a hot wet pack.

As purgatives not only relieve congestion of the abdominal viscera directly, but also seem to indirectly stimulate the kidneys to increased secretion, probably by relieving engorgement, and as calomel is a purgative which is supposed to possess considerable diuretic power, this or some other more rapidly acting drug, such as the sulphate of magnesium, may be given, and this will also aid the body in eliminating poisons through the bowel. Should the arterial tension be great, we are not to forget that in the presence of acute inflammation with high arterial tension, aconite and chloral are valuable drugs which are best given in small doses rather fre-

quently rather than in full doses far apart. Should evidences of cerebral congestion manifest themselves, it may be necessary to resort to hot foot-baths or to actual venesection, the patient being also purged by repeated small doses of Epsom salts. As the end of the period of acute inflammation is approached the anemia, which has probably been gradually increasing, is to be combated by the use of iron and arsenic, though the latter drug is to be administered cautiously lest it irritate the kidney, and solid food may be employed in place of the liquid diet heretofore insisted upon. Oxygen inhalations are also useful to some of these cases. The greatest attention should also be paid to maintaining an active condition of the skin by frequently sponging it with alcohol, or if the patient is strong enough, by frequent washings.

Where the condition of the kidneys is more chronic, or, in other words subacute nephritis is present, the patient should be advised, if possible, to resort to a warm and equable climate, to clothe himself most carefully, to avoid wetting the feet, and to limit his diet both as to fluids and solids. The rule in regard to fluids should be that they should not exceed to any great extent the quantity of urine which is passed, although, of course, an amount of liquid over and above that which is passed must necessarily be swallowed to make up for that which is lost through the skin and lung. This is particularly necessary in patients who are suffering from dropsy, more or less well developed. Should the patient not be passing water freely, copious draughts of fluid may be given to him with the object of aiding his kidneys in getting rid of the quantity of urea which should normally be eliminated and which amounts approximately to about 500 grains. If the physician is properly cautious he will from time to time analyze the urine to determine whether the normal quantity of urea is being eliminated, and should it constantly fall below the normal he will know that there is danger of the development of uremia and cerebral symptoms, and arterial tension should be lowered and diuresis encouraged by the use of nitroglycerin. If the dropsy in any case is sufficiently severe to result in large effusions into the various visceral cavities, there is nothing left to do but to recognize the fact that the condition of the kidney is grave; that the prognosis is distinctly unfavorable, and the only measure for relief in addition to those named is the use of tapping

for the purpose of drawing off the liquid. If, as occurs in some cases, where the disease is advanced, arterial tension is depressed rather than raised, digitalis in the form of the infusion, which contains more of the diuretic principle of the digitalis (digitonin) than alcoholic preparations of this drug, should be employed for the triple purpose of stimulating the heart, the arterial system, and increasing urinary flow.

#### *THE VALUE OF BARIUM CHLORIDE IN HEART DISEASE.*

As is well known to pharmacologists, barium chloride in small quantities possesses a physiological action closely allied to that of digitalis so far as its influence upon the heart is concerned. Thus it slows the heart very greatly, steadies its rhythm, and markedly increases the quantity of blood which is thrown out of the ventricle at each contraction. At the same time it increases blood-pressure, as has been proved by the careful studies of Kobert, of Dorpat; and it would seem probable, from the studies of this investigator and others, that it exercises a more powerful systolic influence over the ventricles than does digitalis, the slowing of the pulse being due rather to an excessive systolic action of the drug and to high arterial tension than to any effect which the drug may exercise upon the pneumogastric nerve. The drug is therefore one which apparently should prove useful in a certain proportion of cardiac diseases, which for one reason or another fail to obtain benefit from digitalis, which, of course, is its superior in the majority of cases.

Following these theoretical conclusions, quite a large number of clinicians have employed this drug in the treatment of heart disease with failing compensation, both in adults and children, particularly when the pulse is weak and irregular and is lacking in volume. We have used the drug in a number of cases, some of which we have reported in a communication made some years ago, and in other cases which have not been contributed to medical literature, and we have reached the conclusion that it is of value, but must take a place after both digitalis and strophanthus as a cardiac tonic. The dose for an adult is a teaspoonful of the one-per-cent. solution three times a day to an adult, or one-half this to a child of from six to ten years. These doses are not capable of causing irritation of the gastro-intestinal

tract, and very much larger doses of barium are required before it will act as an irritant poison. There are, therefore, no reasons why it should not be tried in the care of cases which we have mentioned.

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*THE TREATMENT OF OBSTINATE HEAD-ACHE.*

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The intention of this editorial note is not to deal with the treatment of headache by the ordinary remedies such as the coal-tar products, but rather to call attention to the use of another substance which, while it has more limited usefulness, is nevertheless capable of giving marked relief in a certain proportion of cases where acetanilid, phenacetine and similar compounds failed. As long ago as 1889 Lewis and de Schweinitz reported no less than eight cases of violent headache, which had resisted other forms of treatment, which were benefited by the use of the oil of eucalyptus. In the first of these, violent occipital headache with zigzag lines and prodromal hallucinations was entirely unaffected by the administration of full doses of quinine, although there was a marked malarial history. Further than this, correction of errors of refraction did not give relief, but the exhibition of five minims of the oil of eucalyptus five times a day caused a complete cure. In another instance in which there was neither malarial nor rheumatic history, but a severe occipital headache of the congestive type, similar doses of oil of eucalyptus gave relief unless the headache was distinctly dyspeptic. In still another instance a patient suffering from occipital headache of the congestive type, and in whose case cannabis indica and antipyrin were utterly useless, not only was relieved of the individual attacks, but was able to prevent subsequent ones by a few doses of the drug. Perhaps the most interesting case that they report is that of a woman of thirty-three years, with a gouty family history, who had been for some time a great sufferer from hay-fever and who had also suffered from violent headaches of the congestive type, the pain being of a jumping character and spreading over the head, there being associated intense injection of conjunctiva and swelling of the face. In this case, also, the ordinary headache remedies failed, but the oil of eucalyptus given in doses of five minims every four hours gave great relief during the paroxysm, but was most efficient when exhibited during the prodromal period.

Since these studies which we have quoted other investigators have employed the oil of eucalyptus in a considerable number of cases with advantage, and while it is not a remedy which is suited to every case, nor agreeable to take, and while in a certain proportion of cases it may produce disorder of the stomach, it is at least to be remembered when the physician is called upon to treat obstinate forms of head pain not dependent upon morbid growths.

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*SALOL CALCULI.*

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It is not often that insoluble drugs are given for so long a period of time that they accumulate in the alimentary canal and form one mass which may or may not be capable of producing evil effects, and yet every now and again medical literature contains the report of a case in which the prolonged use of some such substance has resulted in the formation of a gastric or intestinal calculus. In this connection it is interesting to note the report made by Mr. Marshall in a recent number of the *British Medical Journal*. Marshall received from Dr. Bradbury an almond-shaped, crystalline mass, possessing a yellowish color, and weighing about one gramme. This mass had been vomited by a young lady who had been taking salol for some months for the relief of intestinal flatulence, and it is interesting to note that the administration of the drug had resulted in marked benefit. After six months had elapsed, during which time she had taken as much as ten grains once or twice a day, she had a very severe attack of colic, with violent vomiting, which nothing would relieve except the administration of morphine. In one of these attacks the calculus already mentioned was vomited, and it was stated by the patient that she had frequently passed similar masses by the bowel. The substance had a salol-like odor and gave the chemical tests of this compound. Further analysis showed that it was practically pure.

Another case by Brossard was reported in the *British Medical Journal* of April 24, 1897, and was that of another female who suffered from gastric dilatation, with paroxysmal gastralgia and frequent bloody vomiting. As the patient refused lavage, the treatment consisted in the administration of large doses of alkalies and a milk diet with salol and calomel in combination. Enormous doses of salol were used, as much as sixty to seventy-

five grains a day. Ten days later the patient (who was usually constipated) suffered from symptoms of intestinal obstruction which lasted for thirty-six hours, notwithstanding the use of purgatives and large enemata and the application of electricity. Finally a movement of the bowels was obtained, and thinking that the pain from which the patient had suffered might be due to a biliary calculus, the stool was carefully washed. About ten calculi were found, the largest of these weighing about thirty grains, and several other small calculi were passed in the two following movements. They all consisted of pure salol.

As Marshall points out, an interesting point in his case is that the calculus occurred in the stomach. In only one other instance is a similar condition reported. Thus Girode, in a case of cholera that had been given salol two days before death, found two masses of salol weighing forty-five grains in the stomach at the post-mortem examination.

Brossard concluded, after consulting a chemist, that the salol had remained unaltered, and thought it was exceedingly improbable that it had been first decomposed and then its constituents reunited. On the other hand, it has been found by experiment that a solution of carbolic acid, which is one of the ingredients of salol, causes powdered salol to agglomerate and after some time to melt, and this occurs very readily at about the temperature of the stomach and intestine during the active processes of digestion. As a result the fluid thus produced is readily caused to solidify when the gastric temperature is lowered by the cessation of digestion or the drinking of cold water, and recrystallization occurs. Marshall believes that salol calculi exist more frequently than is generally thought, and also that some gastrointestinal disease is necessarily present as a predisposing cause to their formation. It is therefore evident that salol is best administered not in plain powder or in pill, but that it should be subdivided by being rubbed up with some innocuous powder, or given in emulsion as originally recommended by Sahli, as by this means the possibility of a calculous formation is reduced to the minimum. Ordinarily we are accustomed to think that the administration of this drug, even should it fail to be dissolved by the intestinal juices, is incapable of producing deleterious results, but Marshall's interesting report indicates that when it accumulates in the intestine or stomach it may produce serious consequences.

#### REDUCTION OF THE DEFORMITY IN POTT'S DISEASE.

In various journals there have recently appeared articles strongly advocating the rapid forcible reduction of the deformity of Pott's disease. The more important of these communications will be found abstracted in the THERAPEUTIC GAZETTE. Some have apparently been founded on extremely limited experience; others upon a most extended and exceedingly successful series of cases. The contribution of Wolff in the *Berliner Klinische Wochenschrift* of February 14 and 21, 1898, reviewing as it does the entire subject, is extremely timely. He points out that Hippocrates states that forcible reduction of the deformity in early cases of Pott's disease was a time-honored procedure. Aurran and David more than a century ago advocated reduction of the deformity by mechanical means, pressure, however, being applied gradually. The teachings of these men were followed with modifications by many others. Forcible reduction was, however, at no time popular. In later times the efforts at reducing deformity have been confined to treatment by Sayre's corset, by suspension, or by various forms of extension.

Three years ago Chipault revived the treatment of forcible reduction under an anesthetic, fixing the spinous processes to each other by means of silver wire, an obviously useless procedure. In 1896 Calot's article appeared. He advised not only stretching the spinal column, but breaking it in two pieces so that the fragments might be put in proper position in regard to each other. The object of his procedure was not merely to lessen deformity, but to cure the spondylitis, and this he stated he had succeeded in doing, claiming for his method that the cure was rapid, safe, and without deformity.

Calot compared the deformity of Pott's disease to that resulting from tubercular inflammation of the hip- or knee-joint. When the disease is of short standing—i.e., has not lasted more than a few months—the irregularity is corrected under narcosis in the following way: Two assistants at the head and two at the legs of the patient make forcible extension and counter-extension, while the surgeon presses with his full force on the projection. As a result the prominent vertebræ sink to the level or even beyond the level of the remaining bones of the spinal column. There is often heard a cracking, showing that the spinal column is broken. The bones

can then be put in proper position. For the purpose of keeping the bones in this position a plaster bandage is applied extending from the head to below the hips. This is applied while the narcosis is still kept up, the parts which it encloses being first enveloped in a thick layer of cotton. It is especially reinforced about the region of the kyphosis. This enables the surgeon to apply the gypsum bandage very firmly. The bandage is allowed to remain in place three or four months and then replaced by another. After the second or third corset the patient may be regarded as convalescing and can wear an apparatus which can be removed. The cure of the deformity requires from five to ten months.

This procedure Calot, to quote his own words, slightly modifies. Instead of wiring the spinal processes together, as does Chiquault, he resects their extremities and together with them a portion of the often cicatrized skin which lies directly over them. When the deformity is four to eight months old the method is stated to be absolutely and completely satisfactory, and Calot believes that if surgeons generally taught this method every child suffering from Pott's disease would not only be cured, but would grow up without any appreciable deformity. Even when the disease is four to eight years old and bony union has fixed the vertebræ in their false position, complete cure is still possible. In such cases Calot has made a wedge-shaped resection, the base of the wedge being backward and embracing the prominent hump. Posteriorly he removed portions of the three vertebræ, exposing two and a half inches of the spinal cord, which was drawn aside when completing the excision of the wedge. The callus was chiseled through sufficiently to allow the bones to be separated by means of traction and pressure, after which the spinal column was put in proper position.

Among his first thirty-seven cases Calot observed no death. In but one instance was there paralysis of the leg, which proved transitory. Four times ulcers developed under the bandages; these quickly healed. In two cases abscesses developed. Calot exhibited six of his patients before the Academy of Medicine, showing apparently extremely gratifying results.

The claims which Calot makes for this method seem extravagant. Thus, as to the rapidity and thoroughness of cure of tuberculous affections of the spine of similar nature

to those involving other bones, it has long since been shown that cure is by no means accomplished by securing the bones in proper position in regard to each other; indeed, a forcible reduction often seems to stimulate the rapidity of tuberculous involvement.

As a matter of fact, Murray has shown by post-mortem examination that reduction of deformity by no means stops the tuberculous process. Menard has proven by cadaveric experiments that the straightening of the angularity may cause a separation of from one-fifth of an inch to one and a half inches of the anterior portions of the vertebræ, a gap which cannot be filled by bony material. Calot's x-ray pictures, intended to show that this breach is filled in, are, according to Wolff, not satisfactory.

The accidents and difficulties encountered in practising this method of forcible reduction are many.

Brun records a death immediately following the reduction, due, he states, to chloroform. Civel records a death of bronchopneumonia immediately after the procedure. Malherbe treated a boy aged twelve with a gibbus of eight years' standing; the patient became cyanotic, suffered the next day from violent pains in the back and extremities, and died of dyspnea on the eighth day. Section showed there was complete fracture between the ninth and tenth dorsal vertebræ, and a blood-stained exudate in the left pleural cavity. Bilhaut reports three deaths. Joannesco has attempted the method thirteen times and lost three cases. One he attributes to chloroform; in one the cause is not given, although the patient died in forty-eight hours; the third died of bronchopneumonia caused by the reduction. Vulpius noted that a patient could not be restored to consciousness after the anesthetic; the temperature steadily rose, and forty-eight hours later the patient died in coma. Calot himself records two deaths within a few days after the reduction of the deformity. Malherbe observed threatened syncope forty hours after reduction of the deformity, relieved only by removal of the dressing and the restoration of the gibbus. Vincent in three cases found it impossible to reduce the deformity. In five other cases he noticed that even though the deformity was reduced, it recurred under the plaster bandage. The majority of surgeons who have attempted this method hold that its merits and dangers have not yet been settled, and that they must be determined by further trial.

Wolff, however, states without hesitation that this is unnecessary, and that Calot's method should be rejected without qualification, basing his conclusion on Calot's own work. Thus, he states that he has seen the French surgeon reduce deformity in three cases, but in a manner absolutely different from that which he describes. He has utterly abandoned open resection and powerful pressure, advising instead extreme gentleness. Efforts at replacement are continued for only a few seconds and consist in traction upon the spinal column, varying from 40 to 160 pounds, and pressure applied on either side of the gibbus by the thumbs of the assistant exerting a force of from 26 to 80 pounds. The trauma, he states, is no greater than that incident to permanent extension.

This modification is not to be commended, since it accomplishes little and since it is followed by an apparently unnecessarily cumbersome, confining and irksome dressing reaching from the head to the hips. Nevertheless Wolff holds that Calot's contribution and the discussion to which it has given rise have been of extreme service, since they encourage the surgeon in making more vigorous efforts at reducing deformity.

Wolff believes he has, profiting by this method, elaborated a method of treatment which will accomplish much better results than could be hoped for by either the older or the more recent method. He has practised it in twenty-four cases. It consists in the correction of the deformity by suspension and pressure and the immediate application of a plaster bandage. This correction and adjustment of a new plaster is repeated every few days or weeks. The dressing is applied without ether, does not threaten life in a healthy patient, does not break or tear the vertebræ, occasions but slight pain, and does not require the application of a heavy bandage such as the one which Calot advises. Patients are suspended in the ordinary way, the hips being fixed by proper supports. The shoulders are held by an assistant. The assistant presses firmly on either side of the gibbus with the point of the thumb and the middle joint of the forefinger as the extension is applied, and maintains his hand in this position while the plaster is put on. This protects the bony projection formed by the spinous processes from direct pressure. After repeated applications of the plaster very decided improvement is noted. A number of illustrations are given showing the astonishingly good results.

## Reports on Therapeutic Progress

### ON THE TREATMENT OF SOME OF THE MORE COMMON EYE AFFECTIONS.

The *Edinburgh Medical Journal* for November, 1897, contains a continued article by Mr. BERRY with this title, in the course of which he tells us that the treatment of cases of conjunctivitis with marginal ulceration of the cornea should be the same in most respects as that devoted to the cure of keratitis or conjunctivitis alone. Lead lotions must, however, be avoided, as they lead to dense white deposits in the cicatrices, which remain after the ulcers have healed. Where the ulcers are superficial and small, a drop or two of a weak nitrate of silver solution (one grain to one ounce) may be dropped into the eye, after an irrigation with boric acid lotion, once daily for three or four days. This often at once induces healing, even in cases where the ulcers have continued in much the same state previously for a couple of weeks or longer. The ulcers often cause a good deal of pain. To allay this, cocaine may be used (two- to five-per-cent. solution of hydrochlorate), but it is not advisable to apply it very frequently—for instance, every half-hour, as is often done. Immediately before and after each irrigation is sufficient to give relief. It is a good plan, too, to instil a few drops into the eye the last thing at night, as the local anesthesia thus caused often allows the patient to fall asleep, which the pain otherwise prevents. Eserine drops are often recommended for the treatment of catarrhal as well as for other forms of corneal ulcer. The writer has never been able to satisfy himself that they are of any use at all for this purpose, and as they are sometimes actually hurtful, they should not be used. Dark glasses are particularly indicated in all cases of conjunctivitis with marginal corneal ulceration.

Deeper and more rapidly extending marginal ulcers should be brushed once or twice with chlorine water (full strength), or if this is not available, with a two-per-cent. solution of nitrate of silver. The brushing, to be effectual, should be done with some force, the camel's-hair brush being dabbed on to the ulcers several times so as to bring the antiseptic properly in contact with all parts of their surface. By using cocaine this can be done without causing any pain to speak of. Afterwards, dusting with finely powdered iodoform is useful after each irrigation. The



application of iodoform in powder is preferable to its use either in ointment or in gelatin disks, the latter of which dissolve in a few minutes and leave only a comparatively small quantity of the iodoform *in situ*. When deeper marginal corneal ulcerations exist, in the absence of much conjunctival secretion, it is sometimes a good plan, if they do not tend to heal, to cover them with a flap of conjunctiva. This is done by undermining the surrounding conjunctiva with scissors and stitching it forwards.

The main characteristics of the forms of conjunctivitis which have been so far considered are the nature of the secretion from the inflamed mucous surface and the rarity of corneal complications.

In purulent conjunctivitis, on the other hand, serious corneal mischief has always been dreaded. There are, probably, several causes of purulent inflammation of the conjunctiva. Much the most frequent cause, and the one which gives rise to changes which may be taken as the type of those caused in other ways as well, is the gonococcus inoculation. This is met with as gonorrheal ophthalmia and in new-born infants as ophthalmia neonatorum.

Apart from the copious and distinctively purulent secretion of gonorrheal conjunctivitis, which shows itself in two or three days after the first symptoms of irritation have begun, there is rapidly developed a great, often an excessive, inflammatory swelling and tenseness of the eyelids. The ocular conjunctiva and subconjunctival tissue is also swollen, tense, and edematous. This is what is called chemosis. In a few days the tenseness in the lids and ocular conjunctiva, especially the former, subsides, but the pus continues to be formed in great quantity.

It is important, and usually not difficult, to recognize early the specific nature of the conjunctival inflammation. The tense swelling of the lids and chemosis are, in fact, characteristic. The only thing which might mislead one is the appearance presented by severe cases of a muco-purulent type which have been persistently poulticed for a day or two. But even in these there is an absence of the hard, tense swelling presented by most cases of gonococcus or similar infection.

Having regard to the grave consequences to the cornea which a purulent conjunctivitis may entail, the treatment has to be considered not only from the point of view of what is best for the infected eye, but also with regard to prophylaxis in the case of the other

eye. Indeed, the first thing which should always be done whenever there is cause to diagnose a gonorrheal or other purulent conjunctivitis of the one eye, is to actively disinfect the other, and then secure it against the risk of subsequent infection—a risk which, it must be remembered, exists so long as the purulent discharge continues. The disinfecting of the sound eye is of course undertaken on the supposition that it may possibly have been recently inoculated, and may be done in the following way: After dropping a little cocaine solution into the conjunctival sac, the lids are everted, and the mucous surfaces, including as far as possible the folds, painted over with chlorine water. The lid margins are then rubbed freely with little pledgets of absorbent cotton-wool moistened in the same antiseptic. This is followed by a free irrigation of the whole conjunctival sac, with not less than a pint of a two-per-cent. boracic acid solution. A little iodoform or boracic ointment is lastly rubbed along the lid margins and the occlusion bandage applied.

The first indication to be complied with in adjusting an occlusion bandage for this purpose is, of course, to secure the eye from any chance of becoming inoculated by the purulent secretions from the other side; the main risk of such inoculation occurs at night. When the discharge is copious, and the patient lies on the side of the sound eye, some pus may readily find its way across the bridge of the nose, or even be transferred unconsciously by the patient's hands. Such an accident may be prevented by covering the sound eye with a good-sized pad of absorbent cotton-wool, held in place by a properly applied bandage. The following plan may be recommended: Next the eye—*i.e.*, immediately over the closed lids—place a circular piece of lint (two to two and a half inches in diameter) which has been dipped in boracic lotion. Powder a little iodoform over its inner edges, and then cover this with a pad of absorbent cotton-wool, which, to the inner side at all events, projects a little beyond the lint. The pad is then secured first by two pieces of thin tape plaster (one-fourth or one-half inch), placed diagonally across it from forehead to cheek, and further by a dome or thin flannel bandage, eight to nine feet long and two and a half inches wide. One turn of the bandage may first be taken round the head, beginning from the opposite side to that of the eye which is to be covered; the next turn is carried down over the pad below the ear; and the third over the upper part of

the pad, and covering in the ear. This occlusion bandage need not be changed more than once every second day. Such a bandage, while efficiently preventing direct inoculation, has the disadvantage of depriving the patient of the use of his eye. In most cases this is tantamount to keeping him in the dark altogether, as the pain and swelling of the lids make it impossible to see with the affected eye. This privation, added to the trouble and anxiety which his condition cause him, has a very depressing effect upon the patient. It is therefore better, as soon as possible, to adopt some arrangement whereby sufficient protection is provided against inoculation, while at the same time the good eye is not altogether thrown out of use. The simplest and most readily prepared contrivance of this nature is what is known as Buller's shield. This consists of an ordinary watch-glass fixed in an aperture between two pieces of adhesive plaster. The shield may be made and applied in the following manner: After cutting out a rectangular piece of paper five inches long by four inches broad, this is held over the eye in such a position that its inner border just covers the middle ridge of the nose, and its lower border lies horizontally on a level with, or slightly below, the lowest point of the nostril. A circular opening half an inch or so less in diameter than the watch-glass which has been procured for a window is then cut in the paper, the center of which should coincide as nearly as possible with that of the pupil when the eye is directed straight forwards. From this paper pattern two pieces of rubber or other adhesive plaster are cut. Then, holding these two pieces together with their non-adhesive surfaces in contact, and so that edges and apertures exactly coincide, a strip one inch wide is cut off the top and one-half inch wide off either side of one of them. The watch-glass, with its concave side downwards, is laid on the adhesive surface of the smaller piece of plaster, so as to cover in the opening, and the plaster securely fixed round the concave rim of the glass in this position. This piece with its glass is then fitted to the other, so that the two lie with their adhesive surfaces in contact in the same position as they did when the surfaces were reversed. There is thus formed a shield, three margins of the under surface of which can be readily fixed along the forehead, down the side of the cheek, and along the nose. The lower edge is not plastered to the face, so that air gets in behind the shield and prevents dimming the glass.

In applying the shield the watch-glass should be secured in a suitable position in front of the eye, and particular care should be taken that the margin along the nose adheres tightly. An extra strip of plaster may with advantage be fixed over this margin. The advantage of Buller's shield over a regular occlusion bandage is not confined to the relative comfort which the patient obtains; an additional advantage is that it does not as a rule require to be changed, as it admits of a ready inspection of the eye by the surgeon.

In the treatment of the inflamed eye everything must be done which is calculated to prevent the cornea becoming involved. It is well to recognize that the main, if not the only, cause of an accompanying corneal ulceration is an inoculation with the specific discharge in places from which the protecting epithelial surface has been removed. The denuded cornea is certainly easily inoculated. Possibly inoculation may take place even when the epithelial covering remains intact. It certainly does not do so readily, and therefore from a clinical point of view it is well to keep before one the desirability of providing as far as possible for the protection of the epithelium. Careful handling is therefore a most necessary precaution. Removal of the epithelium is too often caused by forcible opening of the swollen lids. Owing to the pain and swelling of the lids, it is no doubt often difficult to get a proper view of the eye without using some force. Perhaps the best plan is to instil a few drops of a solution of cocaine (two to five per cent.) into the eye, and then separate the lids by the finger-tips applied to their margins, taking care not to allow the nails to scrape on the cornea. Indeed, the use of the cocaine should be as much to facilitate gentle handling as to diminish the pain which an examination causes the patient. This is often forgotten, yet it is of great importance. Cocaine should only be used during any manipulations which the treatment renders necessary, not at other times. Elevators or speculum should in general be avoided, and when introduced, and whilst *in situ*, must be kept held away from the cornea, so that the epithelium may not be injured in any movement of the eye. Strong caustic solutions are also liable to injure the corneal epithelium when applied to the conjunctiva. Those most commonly in use are solutions of nitrate of silver and corrosive sublimate. The former should not be used on this account stronger than two

per cent., or ten grains to the ounce, and the latter not more than .002 per cent., or about one grain to the ounce. But it is better to avoid these solutions altogether.

#### *THE BECHTEREW TREATMENT IN EPILEPSY.*

DE CESARE (*La Riforma Medica*, Aug. 13, 1897) records eight cases of epilepsy treated for a period of six weeks with a mixture of bromide of potassium, codeine, and adonis vernalis, given twice a day (Bechterew treatment). In four cases there was complete suspension of the fits; in three cases the fits were replaced by infrequent attacks of vertigo; and in the last case there were four attacks of vertigo and two convulsions. In each case the attacks were very much reduced in frequency; no bad results were observed. The digestion was not impaired, the pulse was fuller, the temperature normal, diuresis increased, sleep uninterrupted and calm, and the mental condition unchanged. The author believes the results were due to the combination of drugs and not to the bromide alone.—*British Medical Journal*, Oct. 23, 1897.

#### *"RHEUMATIC" TETANUS AND. THE ANTITOXIN TREATMENT.*

STEINER (*Wiener Klinische Wochenschrift*, 1897, No. 36) records two cases of interest from the point of view of etiology and therapeutics respectively. The first occurred in an apparently healthy man of thirty-eight, five days after he had contracted a chill by becoming wet to the skin. There was no obvious breach of surface, but the disease ran a subacute course, and after a month showed no signs of improvement. At the end of this time a large purulent crust was sneezed out of the nose, and from that moment the patient rapidly recovered. The crust was, unfortunately, not preserved, but Steiner considers that infection must have taken place by means of dust somehow introduced into the nose. The case would have formerly been classified as one of "rheumatic" tetanus.

The second patient was a man aged twenty-five, in whom the symptoms followed a cut of the left thumb by a fall. Here the disease was more acute, and on the sixth day the spasm, pain, sleeplessness and profuse sweating had rendered him apparently moribund. Tizzoni's serum was injected to the extent

of 1125 immunity units, followed by 300 units the next day, and 825 the day after; in all 2.5 grains of the dry substance was administered. Half an hour after the first injection the patient expressed himself relieved, and he thenceforward speedily improved; the last spasm occurred the day after the final injection, but a slight rigidity of the left forearm persisted for another fortnight, together with sciatica and more marked rigidity of the adductors of the hip. The curative action of the serum was instanced by the immediate cessation of the excessive sweating, and the return of quiet and sleep, in addition to the marked subjective amelioration. Furthermore, the spasms, which had been excessively violent, ceased at once for eight hours, and those which occurred later were abortive, and for the most part painless. The temperature, which had risen to 101° F., was not at once reduced, showing that its origin must be complex.

It should be mentioned that in both cases all the ordinary drugs were ineffectually employed. From them the author draws the following conclusions: (1) An apparently "rheumatic" tetanus was really due to infection through an unusual channel. (2) This was rapidly and spontaneously cured by the expulsion of the principal source of infection—the crust from the nose. (3) Tetanus antitoxin exerts no noxious influence on the organism. (4) In one case at least it appeared to rapidly cut short the disease. (5) The judicious use of the antitoxin will cure cases that would not have got well spontaneously. Steiner strongly recommends its use in conjunction with local or symptomatic treatment. The seat of infection should first be disinfected, preferably with an iodine compound (iodoform); then large quantities of fluid should be given with the object of washing the toxins out of the organism; next physiological antidotes, such as chloral, morphine and bromide should be administered; and finally, the antitoxin injected. The author believes that the latter is not a chemical antidote, but antagonizes the toxins in complicated and physiological ways.—*British Medical Journal*, Oct. 30, 1897.

#### *TREATMENT OF DYSMENORRHEA.*

The well known gynecologist, Mr. SKENE KEITH, in the *Medical Press and Circular* of October 27, 1897, in discussing the treatment of dysmenorrhea, tells us that in every case, without exception, general treatment must be

most thoroughly tried first, because many, and certainly all the slighter cases, can be cured or much relieved in this way, and also on account of the very evident objection there is to local interference. It is fortunate that this is one of the conditions which can often be treated without actual local knowledge of the condition of the pelvic organs. The general treatment, and with it the preventive treatment, may now be considered. At the time of puberty enough attention is not given, more especially to the delicate girls, to keep up what is commonly called a good circulation. Many girls get far too little exercise—occasionally far too much and of an unsuitable kind—and far too little care is taken both at home and at school to keep them warm, especially at night. People do not seem to think it matters to let a growing girl go to bed with cold feet, or if they do, imagine that to have a hot-water bottle is coddling. A greater mistake is never made. It is essential that the feet be kept warm during the night whenever there is uterine dysmenorrhea, or indeed whenever there is any pelvic trouble. In some cases it is advisable to have the feet and legs thoroughly rubbed before going to bed.

The preventive treatment consists, then, in keeping the girl warm and in attending to her general health. When a delicate, chilly girl is developing into womanhood, a winter passed in a warm climate may make all the difference whether she is to be a strong or a delicate woman, and at the same time dysmenorrhea, if present, will usually be cured. To most, this form of treatment is not accessible, and we must rely on the avoidance of too many lessons, of too much practising in a draughty schoolroom with probably perfectly cold feet, and on the indulgence in plenty of fresh air, with outdoor exercise—not too violent nor continued for too long at a time—in going early to bed and not being up too early in the morning, in keeping warm day and night, and in the judicious use of the morning bath. Some may be able to bathe in cold water, others will require to have the chill taken off the water, and others again may do well while standing in warm water to have first tepid and then cold water poured over them, and especially down the spine. The best guide to go by is that the person must feel warm by the time she has been dried. As soon as there is the slightest appearance of the "period" the girl must be kept rigidly to bed, and not allowed to get

up until the pain is entirely gone and the flow is either over, or is at least past the worst. A large poultice should be kept over the abdomen as long as there is any pain. For medicine, a brisk saline draught at the commencement, or if possible twelve hours before, and then a mild diaphoretic, with a small dose of bromide of sodium or potassium if the patient be strong, or if weak some aromatic spirits of ammonia are best. Sedatives should be avoided as a rule, and the very favorite remedy—hot gin—should not be prescribed except for the very weak people.

When the dysmenorrhea has lasted for some years, it is more difficult to effect a cure by means such as these, because secondary results have now come into play. In spite of this, they should be tried in all cases where the pain is not very severe for six months, or better, for a year. It cannot be too carefully explained that this general treatment is not meant only to relieve pain at the time, but is intended to effect a permanent cure, otherwise it is difficult or impossible to get the average patient to take the rigid care which is necessary.

With the exception of the use of various drugs there does not seem to be much difference of opinion about the general treatment of such cases, though the necessity for keeping the patient warm is often not insisted on as it ought to be.

When we come to the consideration of the local treatment, we find more or less difference of opinion, and it is not necessary to go over in detail what this one and that one has written on the subject, for they may all be classified. Opinions about local treatment may be divided at present among those who do nothing and will hear of nothing being done; among those who advocate the use of stem pessaries; among those who recommend dilatation, either slight or great, with or without curetting; and among those who advise lateral or posterior division of the cervix. To this number of methods the writer adds two: posterior division of the cervix with stitching; Dudley's operation and the use of the constant current, after Apostoli's method.

(a) Those who will do nothing, and a sub-class, those who very seldom will advise anything, in all probability base their opinion on the very poor results that have come under their notice, either in their own practices or in those of others. This class appears to be a large one.

(b) The stem pessary has had its day in

the treatment of flexions. It is unscientific, and, what is much worse, it can only relieve, seldom cures, and may do harm.

(c) Dilatation requires more consideration; it consists of two kinds—slight and great. The first has its advantages in certain cases. It is suitable in the case of married women, when the flexion is not great. In such circumstances it is used in the hope that by distending the canal impregnation may take place, for if the patient becomes pregnant, the dysmenorrhea is cured. Its purpose is simple, and an anesthetic is not required; it seems to be entirely devoid of danger, and the patient does not require to stay in bed. When impregnation does not occur, the good effect passes off very quickly. This line of treatment is useless when the flexion is very acute; for the unmarried it is also impossible, or, at least, very painful without an anesthetic.

Overdilatation has also its merits. It may be done with tents or the rapid forcible method. The action is not the same; with the tents it is simply a distention of the canal; by the rapid method there is, in addition, more or less tearing of the tissues when the operation is pushed to its fullest extent. Dilatation by means of tents is simply the before mentioned slight dilatation carried a step farther, and under similar circumstances may be admissible.

The advocates of the rapid method claim that it is suitable in all cases, whether the patient be married or not. If it cured or greatly relieved the majority of cases at the first operation, this treatment could have much said in its favor, for it is easy in its performance, and is, so far as the writer has seen, harmless, if the late Professor Spence's saying be remembered, that to pass a bougie through a urethral stricture what was most wanted were patience and sweet oil, though nowadays it would have to be something more than sweet. Many patients are not cured unless, of course, they become pregnant, and the writer has heard a strong advocate of the method say that we must go on dilating until we get a cure. This necessity for repetition is a fatal objection, if by any other method even as great a proportion of cases can be cured by one single operation. With reference to this form of dilatation, there is one thing that must be borne in mind—it is that when the stretching is done it must be done thoroughly. Hegar's dilators, or some similar instruments, are as a rule employed in this country, and they do

very well, though sometimes, when the tissues are very hard, a double bladed dilator does better. Whatever instrument is used, the stretching ought to be carried out while the uterus is fixed by tenaculum in its natural position; not as is taught in some schools, when it is drawn to or outside the vulva.

(d) Simpson's lateral and Sims' posterior division of the cervix must have been performed a very great number of times, often with satisfactory results when the patients were married. The object of both operations is to enlarge the uterine canal; the objection to both is that this result is often only temporary. To give much prospect of the canal remaining open, it is necessary to keep a plug (preferably one of glass) in the canal until the wound or wounds have thoroughly healed by granulation, and then to pass a bougie occasionally. The result of this irritation is that the cervix is apt to become hard, and symptoms may arise of as much importance as those the operation was intended to cure. As compared with dilatation these operations have no advantage; they do not do more good and they may do more harm; they are not safer or more easily performed; and the patient requires to be kept in bed for as long a time.

All these different forms of treatment are wanting in certainty; dilating, division, etc., may result in complete failure; there may be improvement neither in the symptoms nor in the local condition; and it is thus not to be wondered at that many able practitioners are opposed to local treatment. The logical position they have taken up in the past is strongly assailed by Dr. Dudley's modification of Sims' operation of backward division. Indeed, the modification makes such a great difference that it is practically a new operation. What is aimed at may briefly be described as the straightening of the uterine canal, and the healing of the cut surfaces by first intention, so that there will be no hard tissue, or possibility of the old bend returning. The operation was described by Dr. George Keith two years ago for the first time in England. The most essential part of the operation is the accurate stitching together of each half of the wound made when the cervix is divided. Performed with the uterus in its natural position, with the help of a Sims' speculum three-quarters of an inch across, it is not necessary to rupture an ordinary hymen, but it is not an operation to be undertaken by those who either have not the dexterity or have not had sufficient practise

to permit them to do it without drawing the cervix to the outside. Frequently, in bad cases, there is more or less tenderness and swelling in the pelvis, and the result of dragging down a uterus when the pelvis is in such a condition can be easily imagined. By this operation nothing is left to chance, and unless the cuts do not heal the cervix remains permanently in the position and of the shape it is left at the time of the operation. So far as he knows, all the cases he has operated on have been cured or have been improved, not only as regards the monthly pain, but as regards the general health the gain has been well marked. Naturally the early cases have not done so well, on the whole, as the later.

The more the body of the uterus is anteverted, the less perfect is the result likely to be, and special care must be taken in such cases to split as far back as possible. Freedom from pain does not always result immediately, and the greater the anteversion the slower is the complete return to health on account of the old standing congestion of the uterine body. In a few cases the writer has had recourse to electricity to complete the cure. This operation is specially suitable for all unmarried women, and for all married, except those who are afraid of becoming pregnant, as it frequently cures sterility as well as dysmenorrhea. Some there are who will have nothing of the nature of an operation, and for them Apostoli's treatment will give relief.

#### THE TREATMENT OF BRONCHIECTASIS.

ARNOLD CHAPLIN in *Treatment* of November 11, 1897, tells us that in the treatment of bronchiectasis a drug is needed which, while it is strongly antiseptic, must at the same time be pungent and acrid enough to induce violent expulsive efforts. The dilated tubes once being emptied can be kept in that state by repeated recourse to the treatment. A substance which answers these conditions is the common commercial coal-tar creosote. It is antiseptic, acrid, and penetrating, and easily gives off fumes on heating. Three years ago the writer began the use of this substance, and after giving it a thorough trial became convinced that it offered many advantages over other forms of treatment.

In order to obtain success with this method the details must be carefully studied, as in that lies the secret of relief. The mode of application is as follows: A room about seven feet square by seven feet high must be obtained, and this must be rendered tolerably

air-tight. It is well to have the room on the top of the house, or away from it, as there will be less chance of the vapors generated from the creosote causing annoyance to those living in the house. In the center of this room a small stand about one and a half feet high is placed, and on this an ordinary spirit lamp, which admits of being raised or lowered. Over the spirit lamp, on a tripod, an enameled tin dish is placed, and into this is poured about half a pint of the coal-tar creosote. The creosote is heated until the dense, pungent fumes are given off. The patient, clothed in an old dressing-gown, is placed in the room as soon as the lamp is lighted. As soon as the fumes begin to come off, an urgent desire to cough comes on, and soon the cough becomes more or less incessant, and attended with the expulsion of large quantities of phlegm. After the sitting has lasted from half to one hour the patient may leave the room, and wait until the next day before taking another sitting. This should go on steadily from day to day for two months. For the first day or two not much benefit will be noticed, but very soon the expectoration becomes less and the odor less disgusting, and before very long the patient, who before was unbearable, is able to mix with his friends, and, unless he has a fit of coughing, his breath is quite free from smell.

When the writer first tried this treatment he believed that after undergoing two months of it the patient was practically cured, but subsequent investigation has convinced him that he must take a sitting at least three times a week if he will keep his expectoration free from odor. With the cessation of the fetor comes increased appetite and strength. After three years' experience of this treatment the writer has not hesitated in saying that it is superior to all others in his hands, and that although it may not cure, yet it certainly keeps the disease well under control, and opens up to the patient the certainty of enjoying health, strength, and social intercourse, to which before he was a complete stranger. All his cases, with but few exceptions, have been adults. Children do not bear the treatment well, and the benefit to them is not nearly so marked.

A few words may be said about the disadvantages of this method. In the first place the treatment is an unpleasant one, and it requires all the persuasive powers of the physician to keep the patient up to the necessity of going on with the application of the drug;

but after a few sittings patients generally become used to it. Secondly, the fumes of the creosote produce running and smarting of the eyes and nose; but this can be prevented by introducing two plugs of cotton-wool into the nostrils and covering the eyes with a pair of glasses rimmed round with india-rubber. Beyond these there are no drawbacks to the treatment, and it can confidently be recommended as likely to improve the condition of the patient if persevered in for sufficient length of time.

#### THE ANTITOXIN TREATMENT OF DIPHTHERIA.

In the *Western Medical Review* of December 15, 1897, M. D. JONES concludes a paper on this subject by asserting that the value of antitoxin in diphtheria is no longer a question of opinion or theory, but an established fact. The few who oppose it have proved nothing in comparison with the enormous mass of evidence as to its specific value. It may, therefore, be affirmed that the following facts have been demonstrated:

1. That diphtheria antitoxin, where generally employed, has reduced the mortality from diphtheria at least one-half.

2. That it has distinctly favorable effects on the clinical course of the disease, shortening it and lessening its severity.

3. That the earlier the treatment is commenced the better the results obtained; the mortality, when adequate doses of antitoxin have been given within the first forty-eight hours of the disease, not exceeding five per cent.

4. That antitoxin is a specific against true diphtheria, and less efficacious in mixed infection, but even in these forms of diphtheria it is of decided benefit.

5. That it is not necessary to wait for a confirmatory bacteriological diagnosis, but that in every clinically suspicious case of membranous angina, especially in children, a medium dose of antitoxin should immediately be given, and repeated if required by the further development of the case.

6. That antitoxin is a remedy without serious after-effects in the doses which have ordinarily been employed; that it has no injurious action on the kidneys, the heart, or the nervous system; that it does not entirely prevent albuminuria, heart failure, and post-diphtheritic paralysis, because the effects of the diphtheritic toxin which has already entered the system before the administration

of the remedy, no matter how soon the treatment is begun, are not always completely counteracted by the antitoxin.

7. That the protection conferred by immunizing doses of antitoxin is almost absolute for a short period of time.

8. Antitoxin should begin in early or mild cases in not less than 500-unit doses; for moderately severe or recent laryngeal cases in not less than 1000-unit doses; and in severe faucial or laryngeal cases in not less than 1500-unit doses.

If, in the face of the volume of statistics and testimony in favor of the antitoxin treatment of diphtheria, the writer hears a physician oppose or condemn it, he concludes that he either knows nothing about its use practically, or his experience has been very limited and with an inferior product; or perhaps he has treated the case until all other means have failed—hopeless degeneration of important organs has taken place—when as a last resort he expects antitoxin to accomplish the impossible. Under these circumstances the remedy is not employed scientifically or honestly, and should reflect discredit upon the physician and not the remedy.

In the late administration of antitoxin we merely stop the storm waged against the frail bark of life, as irreparable degeneration has taken place, and it sinks beneath the silent wave of toxemia.

#### SALICYLATE OF METHYL IN ARTICULAR RHEUMATISM.

SIREDEV (*Journal de Médecine*, Aug. 25, 1897), who has made extensive study of the use of salicylate of methyl, gives some particular indications as to its use. He first remarks that salicylate of methyl is not to be confounded with essence of wintergreen, as is not infrequently done. This latter product is much less pure and has not the same active property as the former, besides having a most unpleasant odor and being more irritating to the skin. The method of application is simple. The part having been washed is laid upon a sheet of gutta-percha tissue. The salicylate is now applied directly on to the skin over the affected joint, drop by drop, and the gutta-percha tissue is immediately brought over so as to completely envelop the affected part. A flannel bandage is then applied in the ordinary way. A thin layer of cotton-wool may be used in some cases if the patient does not find it disagreeable or hot. Should it be the hand or foot,

the part can of course be completely enveloped as described. It does not seem absolutely necessary, according to the author, to apply salicylate of methyl directly to the part affected, for, as in the case of the hip where the process of wrapping up to prevent evaporation would be difficult, it seems sufficient to apply it to the thigh immediately below, for the action of the drug is due to its absorption rather than to a merely local effect. The salicylate dressing may be renewed twice in the twenty-four hours if the pains are very severe, and the quantity applied may vary from 50 to 120 drops according to circumstances. It does not seem to produce any unpleasant effect on the skin, merely a slight degree of redness being observed, which is painless and without irritation.

In the case of acute polyarticular rheumatism the author finds the application of salicylate of methyl, as above described, to be well-nigh impossible. Under these circumstances he administers it internally in large doses. But in subacute and chronic cases where fewer joints are affected, and these distally, salicylate of methyl seems to have extremely satisfactory results, being much more marked than those of salicylate of soda. The pains disappeared in two or three hours after the first application, and the author finds that cases which do not respond to this latter are at once relieved by the methyl.

The existence of heart complications seems to be no contraindication; thus the author has applied it in two cases of severe pericarditis, both of which terminated favorably. The same treatment is recommended for gouty arthritis. In the case of infective arthritis the result was not so good, but in large doses a certain degree of benefit was obtained. It would seem that conditions other than rheumatic are controlled by salicylate of methyl. Thus the lightning pains of tabes, tubercular leprosy, Pott's disease, etc., have in the author's hands been much relieved by the application of this drug.—*British Medical Journal*, Nov. 13, 1897.

#### IODIDE OF POTASSIUM IN PHTHISIS.

H. J. VETLESEN (*Norsk Mag. f. Lægevidensk.*, No. 10, October, 1897), following the recommendation of Sticker, has employed iodide of potassium in small doses in the diagnosis of the early stages of pulmonary tuberculosis. In the twenty-seven cases in

which it was used it gave a positive reaction in eight and a negative in nineteen. In these eight cases the administration of the iodide (half an ounce of a 1½-per-cent. solution thrice daily) was followed in from two to three days by the appearance of cough, or by its exaggeration if already present, by the production or increase of expectoration, and by the detection of râles in those parts of the lungs where previously there had been only slight changes in respiration and a little marked lowering of the percussion note. The râle was found to be almost photographically limited to the suspected area, and did not extend beyond it. In only four of these cases was the bacillus of tubercle found in the expectoration, but in the other three the diagnosis of tubercle was facilitated by the existence of other symptoms—swollen glands in the neck, tuberculous disease of the tibia, etc. In the nineteen cases in which the iodide gave no reaction, Vetlesen believes it proven that there was no tuberculosis; and this belief was strengthened by the fact that several of these cases were also tested by the injection of tuberculin, and gave no reaction. The author has kept the patients within his knowledge for two years, and none of them have developed tuberculosis. The conclusion is that iodide of potassium in small doses is an important auxiliary in the diagnosis of the nature and exact position of apical phthisis, especially for practitioners who are not always able to resort to bacteriological examination of the sputum.—*British Medical Journal*, Nov. 13, 1897.

#### SOME POINTS IN THE MANAGEMENT OF ABORTION.

In *Treatment* of November 11, 1897, ARNOLD LEA after some general remarks on this subject says if, in any case, a diagnosis of threatened abortion is made, how should the patient be treated? In the first place absolute rest in bed, and the use of the bedpan for micturition and defecation, should be insisted upon. The administration of a dose of castor oil, or a simple enema, is often required. With regard to treatment by drugs, if hemorrhage is a marked symptom small doses of the fluid extract of ergot, twenty to thirty minims every four hours, should be given, with the object of contracting the uterine vessels, and thus checking further separation of the decidua. This may be combined with small doses of opium.

If pain, the result of uterine contractions,



is the principal symptom, a full dose of tincture of opium—thirty minims or more—should be given. Occasionally this seems to act better if given by enema. It may be repeated every two or three hours if necessary. The fluid extract of viburnum prunifolium in thirty-minim doses has also a powerful effect as a uterine sedative, though in some cases it appears to fail completely. It may be given three or four times a day, combined preferably with opium.

This treatment should be continued for several days after the symptoms have apparently subsided. We often, however, meet with cases in which abortion is in progress, or our attempts at checking it have failed. We find the os uteri partially dilated, with the pains strong and recurring regularly. If hemorrhage is moderate in amount no interference is advisable. We must always bear in mind that any manipulation undoubtedly increases to a great extent the risk to the patient, however carefully carried out; and though at times it is necessary, we must always keep clearly before us the serious nature of our proceeding. If hemorrhage is free, and the uterus appears to require stimulation, we may administer ergot in considerable doses—one drachm of the extract every four hours—and we may further introduce into the vagina through a duck-bill speculum a tampon of lint soaked in perchloride (1:3000). This should be firmly packed into the posterior fornix. It often brings about the expulsion of the uterine contents in a few hours, though it should not be used in cases after three and a half to four months.

If these mild measures fail to procure complete expulsion of the uterine contents, we must proceed further. It is probable that sixty to seventy per cent. of abortions terminate naturally without any interference, but in practise we are more often called in to the exceptional cases; still in a large number the use of the above treatment is all that is needed.

It is important to appreciate the condition of the uterine contents at the various periods of pregnancy. Thus, at the end of four to six weeks, the decidua forms the bulk of the uterine contents, which at this time do not entirely fill the uterine cavity. At this period the natural efforts usually suffice to expel the ovum and decidua entirely.

At two months the embryo is much larger, and the decidua vera is thinner and more apt to remain behind after the chorion ruptures and the embryo escapes.

At the end of ten to twelve weeks the placenta is clearly differentiated, and the decidua has, to a great extent, atrophied. Inasmuch as the degenerative changes, which normally occur towards the end of pregnancy, have not taken place, adhesion of the whole or part of the placenta often arises. It is important also to note that occasionally the fetus is expelled, surrounded only by the unruptured amnion, the whole of the chorion and placenta being retained. The writer has observed two cases in which this occurred, and Haultain has recently recorded three instances in his own practise.

If, then, the contents of the uterus are incompletely expelled by the natural efforts within twenty-four hours, several conditions may arise:

Hemorrhage may be profuse. No time should be lost in evacuating the uterus. For this purpose the finger carefully aseptized is the most reliable instrument. If this is insufficient, it may be supplemented by the use of a blunt curette to detach specially adherent fragments. If necessary the cervix must be dilated by Hegar's or Duncan's dilators, and an anesthetic may be required.

There may be no hemorrhage, and within three or four days the contents of the uterus are expelled. To facilitate this ergot may be given. Schwabe has lately insisted on the powerful effect of quinine given in ten-grain doses twice a day. This should always be tried along with aseptic treatment of the vagina and vulva.

Recurrent hemorrhage may be set up. If the above remedies do not cause expulsion of the uterine contents, digital removal, as above described, is indicated.

Hemorrhage may entirely cease for a week or longer; then on some slight exertion, severe flooding occurs. This may continue for weeks at intervals. In these cases a piece of decidua or placenta has become vascular, forming perhaps a small polypus. If neglected this condition may result in grave anemia, though fatal hemorrhage is very rare. The only treatment is exploration of the uterus and removal of the fragment digitally or by the blunt curette.

Decidual endometritis may follow the retention of small fragments of decidua. The uterus remains bulky, and severe hemorrhage occurs at the succeeding menstrual periods. This is best treated by dilatation of the cervix and curetting followed by the application of linimentum iodi, or a solution of carbolic acid in alcohol (twenty-per-cent.).

In very rare cases malignant degeneration of the decidua has followed abortion. This is characterized by irregular hemorrhages, profuse and offensive discharges, with enlargement of the uterus. This is soon followed by fixation of the uterus and metastatic growths in various organs. The only treatment is early extirpation of the uterus *per vaginam*.

In addition to the foregoing, the element of sepsis may at any time be introduced in a case of incomplete abortion. This may be the result of autoinfection from the vagina, especially if some fragments of decidua or clot are hanging out of the cervix, thus forming a suitable medium for organisms to develop; exceptionally it may be due to pre-existing uterine or periuterine inflammation, such as a pyosalpinx or pelvic abscess. Lastly, organisms may be introduced from outside by the finger or instruments. If any signs of infection are manifest, such as offensive lochia, pyrexia, etc., no time must be lost in exploring and emptying the uterus. The sepsis is usually mild in the first place and readily curable by energetic measures. If, however, there is delay the organisms may enter the blood-vessels and lymphatics of the uterus, producing general septicemia, which may terminate fatally, or result in chronic inflammation of the uterus and appendages.

It is important in treating these cases to avoid the use of the sharp curette, as there is great danger of opening up the sinuses and thus facilitating the march of the infection. The finger or a blunt curette should be used, and a strong antiseptic then applied freely to the uterine cavity.

#### HOW TO TREAT SICK-HEADACHE.

Analgesine, says Dr. HIRTZ in the *Journal des Praticiens* of December 11, 1897, is unquestionably a medicament of the first order. Huchard experimented with it as an antipyretic; but it is especially an analgetic, and Germain Sée used it commonly to combat pain. The dose is, so to speak, individual. Some subjects are relieved by a dose of four grains; others require fifteen grains; and sometimes thirty or forty-five grains are necessary to obtain recovery.

Patients should be warned against the abuse of this drug, which has become public property and is frequently taken without the advice of a physician, as it gives rise occasionally to symptoms of veritable poisoning. Analgesine is more easily tolerated when

combined with eight grains of sodium bicarbonate. It may also be administered hypodermically when the condition of nausea dependent upon the headache is too painful and too pronounced to allow of the ingestion of any liquid. It may be given in enemata, from thirty to forty-five grains of analgesine with six drops of laudanum being sufficient for four injections.

Before the employment of analgesine, says the author, caffeine was frequently prescribed, either in potion or in subcutaneous injection, and the following formula by Huchard may be recommended:

R Caffeine,  
Sodium benzoate, of each 660 grains;  
Peppermint water, 8 ounces.

M.

A teaspoonful is to be given every two hours until four teaspoonfuls have been given, each one representing four grains of caffeine. The same dose will be contained in a Pravaz syringe, with the following formula for hypodermic injection:

R Caffeine, 38 grains;  
Sodium benzoate, 44 grains;  
Distilled water, sufficient to make 2½ drachms.

M.

If the sick-headache persists after the administration of analgesine, other drugs may be tried, such as acetanilid. They should not be given except in divided doses, in small capsules containing from three to four grains five or six times a day. Care should be taken not to exceed thirty grains a day.

Phenacetine has the advantage of being almost non-toxic and of provoking much more rarely than analgesine eruptions and symptoms of intolerance. Capsules containing four or five grains may be given four or five times a day.

Exalgine does not give such brilliant results in sick-headache as in the trifacial neuralgias. Four grains may be given at a time, but this dose should not be exceeded, and its action should be carefully watched, as it gives rise to accidents.

Lauder Brunton, says Dr. Hirtz, recommends sodium salicylate combined with potassium bromide. The amount is twenty-three grains of the former and thirty-eight grains of the latter, given in four doses.

Immerwahr, Lewy and Schumann have found in methylene blue a very efficacious remedy for sick-headache, especially the form called angeiospastic. They gave it in doses of a grain and a half four times a day,

combining it with nutmeg as follows, in order to avoid vesical irritation:

- R Methylene blue,  
Pulverized nutmeg, of each 1.5 grains.

M.

This quantity will make one capsule, about four of which may be given a day.

Migrainine, which is considered by Schumann one of the best remedies for sick-headache, is a combination of antipyrin and caffeine as follows:

- R Antipyrin, 89.4 per cent.;  
Caffeine, 8.2 per cent.;  
Citric acid, 0.56 per cent.

M.

Aconitine is sometimes successful when other nervines fail. It is prescribed in globules only, each containing four one-thousandths of a grain, of which two a day may be given.

Guarana contains guaranine, which is identical with caffeine. It is given in a powder in doses of from eight to thirty grains dissolved in water.

Seguin, who was a great advocate of the ocular theory of sick-headache, thought it was frequently due to defects of refraction, and he recommended the employment of mydriatics and the correction of the muscular defects by wearing proper glasses. As an internal remedy, he recommended the extract of cannabis indica, to be given three times a day in pills, each containing a fifth of a grain, which amount may be progressively increased to three grains. Gradle, of Chicago, prefers the tincture of cannabis in doses of from twenty to twenty-five drops twice a day, at an interval of six hours.

Ophthalmic sick-headache during its painful stage is amenable to the same treatment as common sick-headache. Other indications, however, present themselves. This form of sick-headache is associated with nervous affections, such as neurasthenia, hysteria, certain mental troubles, epilepsy, tabes, and general paralysis. The most useful treatment, and the only one really efficacious, given in the interval between the attacks in order to delay their recurrence, is with the bromides. Charcot and Fere, says Dr. Hirtz, laid great stress on the services which this treatment rendered. Potassium bromide, sodium bromide, or a mixture of several bromides, may be prescribed in amounts increased from thirty to ninety grains in twenty-four hours.

Ophthalmoplegic sick-headache sometimes resists all treatment. During its painful stage

antipyrin, phenacetine, exalgine, etc., may be employed. The paralytic stage is frequently rebellious to all therapeutic intervention, and this is explained, says the author, by the anatomical and pathological changes. In one case Gubler found the oculo-motor nerve surrounded by an abundant exudation, with thickening of the pia mater. In a case coming under Weiss's observation the nerve was buried in tuberculous masses; in another the nerve was pressed upon by a fibro-chondromatous tumor. In spite of these facts, which baffle all attempts at cure, either the iodide or the bromide treatment should always be tried. Locally, energetic revulsives may be tried under the form of blisters, the cautery, or even the seton. Not only must the attacks be cured, but, what is more difficult to accomplish, their recurrence must be delayed, in order to render them less frequent, and, if possible, to cause their disappearance. To do this, the various causes which lead to sick-headache should be taken into consideration. The patient should be put upon a strict diet; he should avoid all indigestible food, alcoholic drinks, and liquors, the smallest doses of which bring on an attack of sick-headache in predisposed subjects. The majority of recoveries, according to Dr. Hirtz, are due to extreme sobriety.

Debout recommended the following as a prophylactic measure:

- R Quinine sulphate, 45 grains;  
Pulverized digitalis flowers, 23 grains;  
Syrup, a sufficient quantity.

M.

This quantity will make thirty pills. The dose is a pill every night for a period of several months.

In arthritic, rheumatic and gouty persons, the following treatment is recommended by the author: The patient is put upon a strict diet; nitrogenous or indigestible food, especially vegetable, is not allowed at night, and water or a drink like weak tea may be taken. In the morning, before eating, Carlsbad or Tarasp water, heated to about 104° F., may be taken, or else Vichy water. Every night, before supper, a pill containing the following mixture may be taken:

- R Quinine valerianate, 15 grains;  
Extract of colchicum, from 3 to 7 grains;  
Extract of digitalis, 3 grains;  
Extract of aconite, 1½ grains.

M.

This quantity makes ten pills.

Neurasthenic sick-headache is best benefited by living in the country, moderate

muscular exercise, and a quiet life free from professional occupations. It may be overcome by the employment of the phosphates or the glycerophosphates, the use of which may be alternated with arsenic under the form of Fowler's or Pearson's solution, in amounts of from six to twelve drops a day; or strychnine arsenate may be used in globules containing fifteen one-thousandths of a grain, of which from two to three a day may be given.

Hydrotherapy, static electricity and psychotherapy are, says Dr. Hirtz, ordinarily valuable adjuvants.

#### *THERAPEUTIC PROGRESS IN 1897.*

Under this heading the London *Lancet* of December 25, 1897, points out editorially that although the publications connected with the treatment of disease have, as usual, been very numerous during the past year, interest continues to center round the different applications of various forms of serum treatment. The record of cases of diphtheria treated with antitoxic serum has fallen, or at least the number of publications is less than in the previous year, but this appears to be due to the more general acceptance of antitoxin. The cases which are published include a series of triumphs and, as usual when the majority are agreed upon any given point, there is less room for debate and less need for the record of experiences. More recently greater attention appears to have been directed to the use of tetanus antitoxin, and in spite of the value of experimental work it must be admitted that the clinical results have been frequently disappointing. Side by side with these investigations much valuable work has been done in connection with many of the older remedies.

The list of new drugs to be enumerated is this year comparatively small, and even in this list, with one or two exceptions, the novelties do not seem to be of any great importance. Questions connected with therapeutics have been freely discussed, and the best indication of the tendency of the view of modern physicians was perhaps afforded by the debate on the treatment of insomnia at Montreal. We have in these pages long protested against the continuous administration of hypnotics, and from time to time have sounded a warning note of the dangers connected with many of the newer hypnotics. Hence, we are entirely in accord with the discussion at Montreal, since it

showed that most of the speakers were far from being content with the routine employment of any particular drug. The discussion in many ways served to indicate the limits of utility of different hypnotics, such as sulphonal, paraldehyde, urethane, and the like. Some of the speakers mentioned comparatively new remedies, such as pellotin, trional, and chloralamide, but the whole tendency of the discussion indicated that the causes of insomnia, rather than new remedies, should be sought for.

Perhaps the greatest amount of literature in connection with new remedies deals with the search for a satisfactory local anesthetic. It is not so many years since cocaine was introduced with such extremely laudatory notices that it was perhaps somewhat too indiscriminately used and soon claimed a fairly large percentage of undesirable effects. Most of these effects were absent, or at least were thought to be absent, with eucaïne, a remedy which was fairly largely employed in 1895 and 1896. From the first some patients complained bitterly of the smarting or burning pain which resulted from the local application of eucaïne, and, although the subsequent anesthesia was sufficiently satisfactory, it was felt that it had been rather dearly purchased. It is perhaps yet too early to determine the future position of eucaïne in medicine, but nearly all the published accounts during the year have shown dissatisfaction with the drug, even although its anesthetic powers are fully recognized. On the other hand, in its favor it may be stated that it appears to produce toxic symptoms comparatively rarely and that the toxic dose is greater than that of cocaine. Another local anesthetic—which in composition is said to be closely allied to phenacetine—is holocaine. This also causes some transient sense of burning when applied to the conjunctiva, but it has been claimed for this drug that it has no effect on the pupil, on accommodation, or on the blood-vessels. Inasmuch as this drug has only very recently been employed, the published accounts so far are purely laudatory. Orthoform and anesin are two other local anesthetics of recent introduction, of which, however, very little is yet known. Some interesting experiments have been made with the view of determining the activity and purity of cannabinol, which seems to produce symptoms practically identical with those of Indian hemp; while further experiments have been made with mescal, which obviously possesses a some-

what dangerous power of producing subjective visionary sensations. The accounts of the effects produced by this drug written by Dr. Weir Mitchell and Mr. Havelock Ellis will probably be read as interesting contributions to medical literature, even though they do not pretend to have any therapeutic application.

The position of quinine in medicine appears to be established on such a firm basis that it is rather a shock to find recommendations of substitutes for it. The claims of the substitutes are invariably that they produce less giddiness and tinnitus, while they are credited with similar powers of lowering the temperature. Eucharine has been recommended on these grounds, and from many accounts it appears to have given satisfaction both as an antipyretic and antineuralgic. It shares with quinine the disadvantage of extreme insolubility. Another antineuralgic or antipyretic is a glucoside named kolanine, derived from the kola nut. Other antipyretics which have been described are kryofin and pyramidon. The former is said to be at least as useful as phenacetine or antipyrin, but like these it is not free from the charge of occasionally producing undesirable effects. Pyramidon has been used in typhoid fever and also in some cases of locomotor ataxia. In spite of the introduction of two new antipyretics there can be no doubt that the older methods of cold sponging and baths still remain in favor.

The group of antiseptics has not been materially enlarged. The older remedies are still found efficient and free from objection. Acetanilid has, however, been recommended for local application, while chinisol and airol have also been used as antiseptics. Juniper tar oil, or oil of cade, was not long since recommended as a disinfectant in cholera; careful and extended research has, however, demonstrated that it has relatively weak powers. It has been suggested that in the local treatment of rheumatism oil of wintergreen is preferable to salicylate of sodium, and apart from the greater rapidity of action obtained from the former drug it is said to be free from the liability to produce tinnitus.

Several valuable papers have been published in connection with the treatment of the cardio-vascular system. Foremost amongst these stands an interesting account by Dr. C. R. Marshall of the antagonistic action of digitalis and the members of the nitrite group. In this he furnishes a very useful summary of the actions of digitalis, and

from the experimental side appears to have shown that there is an antagonistic effect on the muscle cells when these substances are used in combination. Further experiments have also been made with digitoxin, which, however, appears to be almost too active for safety. Erythrol tetranitrate, which was introduced by Dr. Bradbury in his Bradshaw Lecture, has in some cases given satisfaction in procuring relief of asthmatic attacks and also of cardiac pain. Pilocarpine has been used for the relief of excessive sweating, although it generally acts as a diaphoretic. Much of a contradictory nature has been written of its value in the treatment of puerperal eclampsia. Many observers maintain that it is a dangerous drug, since it provokes excessive bronchial secretion. It has been suggested that this might be counteracted by the simultaneous employment of atropine.

Creosote, which was formerly much used in the treatment of phthisis, has gradually lost favor owing to its effects upon the stomach and intestines; these discomforts are said to be avoided by the employment of creosotal, which reduces the bronchial secretion, cough, and night sweats. Hydrastis canadensis has been employed in cases of early phthisis and has been found to be an efficient expectorant, while satisfactory results in the treatment of whooping-cough have been claimed for both naphthalene and resorcin. In the paper by Dr. Marshall referred to above the diuretic influence of digitalis was considered. It is somewhat curious to find that strophanthus has lately been recommended as a diuretic, and it is stated that it possesses greater rapidity of action and more powerful diuretic effect, while it is free from the disadvantage of cumulative action or of producing digestive disturbance. The discussion upon diuretics at Montreal was prefaced by two admirable papers which dealt respectively with the clinical and pharmacological aspects and left but little scope for subsequent debate. At the same meeting the diuretic action of *Apocynum cannabinum*, the Canadian hemp, was favorably considered, although it was admitted that it might produce violent emesis and catharsis. These undesirable results were, however, attributed to the admixture of the bitter fiber of the wood with the bark of the root. Salicylate of sodium and caffeine have also been employed for their action on the kidney; the former has been found to check the diuretic action induced by the latter. Small doses of cantharides have been recommended

in acute infectious nephritis, though they are contraindicated in cases of interstitial nephritis. Uremic dyspnea has been treated with ether administered by the mouth and subcutaneously, but it seems only to be of service in cases associated with much pulmonary engorgement. As a laxative for the treatment of chronic constipation in children olive oil has long held a certain degree of favor in domestic medicine; recently, however, it has been urged that it should be employed with a free hand in typhoid fever. Rectal injections of a quarter to half a pint are, if necessary, supplemented by a large breakfast-cupful given by the mouth, and the results claimed for this treatment appear to merit further investigation.

Early in the year we published an account of the treatment of dysentery with *Monsonia ovata*, which is said to exert a specific action distinct from mere astringency. Taka-diasase has been recommended in our columns for some forms of indigestion, and chinaphthol is said to escape change within the stomach and to split up into its constituents in the intestine, where it is credited with local action. Of the list of drugs which have been used in affections of the skin permanganate of potassium in the treatment of lupus, thyroid extract in prurigo, and hypodermic injections of thiosinamine in keloid deserve mention. Tuberculous peritonitis is said to have yielded to the use of creosote in the form of enemata, while injections of glycerin and iodoform into the synovial cavity of the knee-joint are believed to have produced satisfactory results in tuberculous disease of the knee. Thyroid extract has been used with apparent benefit in a large number of different diseases, many of which are devoid of definite pathology. The treatment of syphilis was discussed at some length at the Montreal meeting and allowed scope for detailed remarks on the relative value of different preparations of mercury.

#### ANESTHETICS.

The London *Lancet* of December 25, 1897, after drawing attention to the fact that the year which has just come to a close is the fiftieth anniversary of the introduction of chloroform as an anesthetic, reminds us that the occasion was duly honored by the Society of Anesthetists with a *conversazione* at which an interesting oration on the progress of our knowledge of anesthetics was delivered by the President, Dr. Dudley Buxton. Professor Simpson gave an address in Edinburgh in

commemoration of the first use of chloroform in midwifery by Sir James Y. Simpson. In Tokyo, also, the jubilee of anesthetics was marked by a special meeting and an address by S. Sato, while Ishiguro spoke of the history of the uses of anesthetics in Japan.

Many valuable voluminous papers on anesthetics have appeared during the year, notably one in which Hill carried further his research published in 1897 in the *Journal of Physiology* for May, p. 323. He pointed out that the circulation of the blood depends upon the vasomotor mechanism being intact. The abdominal wall is able to support the veins and so prevents their distention under the hydrostatic pressure of gravity. Muscular contraction during expiration compresses the hepatic and other veins helping to fill the right heart. When the vasomotor tonus is maintained the splanchnic area abrogates the effects of gravity. In vasomotor paralysis gravity at once causes accumulation of blood in the abdominal vessels. This leads to anemia of the brain and the respiratory center is driven to greater activity. Powerful muscular movements take place and blood again enters the right heart. Contraction of the abdominal muscles limits the outflow from the splanchnic vessels. When both the vasomotor tonus and the respiratory pump are paralyzed the circulation cannot be maintained in the "feet-down" position. Chloroform paralyzes both these factors of the circulation. No amount of compression of the abdominal veins will produce paralytic distention of the heart. Both chloroform and asphyxia will do so. Hill finds that such a condition is at once relieved by dropping the patient into the "feet-down" position, as the blood at once flows from the right heart by the force of gravity. The teaching of physiology thus has a practical value and tells us that vasomotor paralysis is a danger to be looked for and provided against as well as the always accepted danger from respiratory paralysis—a condition which Hill finds may arise both from anemia of the brain centers as well as from accumulation of the drug. In the former case the failure of respiration is secondary to the primary cardiac failure.

Wood and Carter undertook a research upon somewhat similar lines and came to rather different conclusions. The fall of arterial pressure, unless very profound, they think does not affect the respiratory center. They admit that if the fall is extreme the respiration will fail, but not otherwise. At

first excessive fall of pressure stimulates the vasomotor center. The circulation recovers itself more slowly after ether than after chloroform. Ether as well as chloroform may cause death some hours after the administration has been discontinued and even after consciousness is present. They regard the effect of chloroform as being more a drug effect than the result of vasomotor influence; and they further think that the after-depression of ether is more severe than that of chloroform. It seems probable, however, that these findings are the result of a fallacy, for they worked with excessive doses of ether when compared with those of chloroform. Hare contends that chloroform kills by vasomotor paralysis. He advocates the use of atropine, bandaging the extremities, compression of the abdomen, and inversion in the event of syncope. Schleich, if we are to accept the evidence of Maduro, has suggested a new and valuable method. His theory is that the anesthetic should have a boiling point as near the body temperature as possible. He has accordingly made three mixtures which have boiling points respectively of 38° C., 40° C., and 42° C., by combining chloroform, ether, and petroleum ether (benzine). The first mixture when inhaled causes a light and transient sleep, the second and third greater and greater depths of anesthesia. The patients are said to be spared all or most of the after-effects of narcosis. No doubt so careful an observer as Schleich has made sure of his ground before he has allowed publication. Meyer (New York) also has employed the method of Schleich for general anesthesia and speaks of its value. It obviates cyanosis, bronchial troubles, and, it is said, does not affect the heart as much as chloroform.

An attempt has been made to trace a causal relation between the temperature, the dampness of the atmosphere, and the death-rate under anesthetics, but it must be confessed that the views enunciated are more theory than proved fact. The subject of anesthetics in obstetric practise has received considerable attention, several papers having been read. Ballantyne draws attention to the fact that the physiological condition of parturition is one marked by hypertrophy of the heart, while the constant contraction of the abdominal and other muscles during labor helps to maintain the circulation. Blood-pressure is thus kept up and even increased, and the respiration is excited. The results of Doenkoff working with

Schatz's tokodynamometer show that although deep chloroformization does lessen the uterine contractions, ordinary narcosis has no effect whatever in that way.

Waller has carried further his important research work commenced some time back, and dealing with the behavior of a detached nerve when exposed to the vapors of various anesthetics. Prolonged series of action-currents caused by tetanization at regular intervals exhibit no diminution—*i.e.*, nerve is practically inexhaustible. When the nerve is exposed to the anesthetics, ether or chloroform, the active currents are temporarily suppressed—*i.e.*, the anesthetics temporarily abolish excitability. Chloroform causes more prolonged suppression than ether, and the suppression is finally absolute—*i.e.*, no recovery takes place. Waller has come to the conclusion that the relation of safety of these two anesthetics is as one to seven—*i.e.*, chloroform is seven times more deadly to nerve-tissue than is ether. The clinical evidence upon this point is usually taken to show that for every one death under ether thirteen under chloroform take place. There seems no reason, however, to regard these figures as necessarily discrepancies, since in the first place the clinical statistics are far from being exact, while there must be obvious differences between the behavior of detached nerve and the nervous system as a whole. Waller's conclusions led him to what he regards as "the chloroform paradox." If, he says, chloroform is a dangerous agent it should only be used in exceptional cases, but if it is as safe as ether, which he denies, any deaths which take place under it ought not to occur, and the persons who are responsible for them must be held to be guilty of culpable carelessness. Waller further examined other bodies with regard to their action upon nerve: Four-per-cent. carbon dioxide increased nerve excitability; in larger quantity it caused its diminution or abolition followed by augmentation—*i.e.*, it behaves like ether. Oxygen, nitrogen, hydrogen, nitrous oxide and carbon monoxide have no effect upon the nerve currents. In reference to the action of carbon dioxide Waller points out that the danger of asphyxial states during the giving of chloroform lies not in the presence of an accumulation of carbon dioxide, but in the accumulation of the chloroform itself.

L. Guthrie, reviewing the subject of "Chloroform Narcosis in Children," finds that children, as far as his experience goes, are affected in precisely the same way as adults and are

therefore quite as liable to the accidents associated with chloroform. Deaths of very young children are perhaps less common than is the case with adults, but it is so simply because children are more easily brought round after overdosage than adults. Their chest-walls are more resilient and their hearts are not as a rule affected by fatty or other degeneration, and hence they respond more effectually to artificial respiration. He gives his experience upon various points. He has never succeeded in chloroforming a sleeping child without awakening it—an important point in medico-legal practise and one illustrated by a recent case of burglary when several persons were stated to have been successfully chloroformed during sleep by the burglar. The conjunctival reflex is not, Guthrie thinks, reliable as a sign of anesthesia in children. Nor does he accept the eye movements as a guide. A moderately contracted pupil, slowly rolling eyeballs, full, deep, regular, somewhat stertorous respiration, slight congestion of the face and lips, regular slow pulse, and no change of these during the progress of the operation are, he thinks, the only reliable signs upon which it is safe to rely. Guthrie also insists that the degree of anesthesia should be varied, accordingly as the different steps of the operation are more or less likely to produce shock.

At a meeting of the Harveian Society (April 29, 1897) the subject of giving anesthetics to children was dealt with, and several speakers referred to the difficulty of judging when a young child was anesthetized. It was pointed out that this drawback did not exist in the case of ether, and its use for young children was recommended. Pollock and Warrington Haward urged the use of ether for children many years ago, and their experience is confirmed by later workers. The employment of the A. C. E. mixture has again been advanced as a useful method in the case of children, and others advocate it both for adults and children as a means of inducing anesthesia, while that condition is maintained by the inhalation of ether well diluted with air. Clement Lucas drew attention to the possible source of infection arising from patients inhaling anesthetics from a dirty face-piece. He believed that pneumonia occurred from this cause. The challenge thus given was taken up by several anesthetists, who discussed the subject at a meeting of their society in March. It was pointed out that pneumonia was a not uncommon complication of surgical procedure in the days before anesthetics came into use.

At the present time such cases were very rare and were probably not traceable to the anesthetic at all. Silk points out that in the years 1894 and 1895, out of 5000 cases published in hospital reports only thirteen cases of pneumonia are noted. All these except one were of septic origin. Prescott, of Boston, had met with three cases of pneumonia out of 40,000 etherizations. Further, both ether and chloroform are destructive to bacillary life. Again, nitrous oxide gas, which is the most commonly given anesthetic, is never the cause of this disease.

With regard to the question of pneumonia following the use of ether, Whitney has found that the pneumonia which occurs is not a peculiar form of the disease; the ordinary pathogenic organisms are present, and the disease follows the normal course. Sternberg holds that pneumococcus is normally found in the mouth. Whitney further suggests that the prolonged use of ether may lower the vitality of the epithelium and enable the organism to exert a specific action. As a prevention he advises that the mouth, nose and pharynx of the patient should all be carefully sterilized before the anesthetic is given.

It is of no small interest to find that two observers, Lemoine and Gallois, have employed ether both internally and hypodermically for the treatment of uremia and nephritis and have met with success. If their results should be confirmed it may prove that the action of ether is after all not so deleterious as has been held by some.

Von Lerber has examined the condition of the blood after ether has been inhaled, with the following results: In 101 cases the blood was examined and the hemoglobin was in the majority of instances unaltered; the corpuscles were found to be but little changed either in number or in appearance, although some leucocytosis was present. Spectroscopic examination of the urine showed no increase of the urobilin. He concludes therefore that ether does not exert any deleterious effect upon the blood.

The statistics of Gurlt for the year are of interest; they comprise 58,769 cases. Of these, 27,029 refer to the use of chloroform with 29 deaths; 19,856 to ether with 3 deaths; 5000 to Billroth's mixture (chloroform, ether, and morphine); 1000 to brom-ethyl; 600 to ether-chloroform with no deaths. The figures for seven years are: 327,500 cases with 134 deaths—*i.e.*, 1 in 2444; and 1 death in 2039 from chloroform.



*THE UNTOWARD EFFECTS OF QUININE.*

A. LAVERAN in an original article in the *Journal des Praticiens* of October 9, 1897, after pointing out that ordinary doses of quinine are usually well borne, passes on to a consideration of the fact that its salts are irritants to the skin if the epiderm is removed, and that they also prove irritating, in concentrated forms, to the mucous membrane of the digestive canal. So much is this so that Broussais has regarded the sulphate of quinine as sufficiently irritating to produce or augment gastritis present in febrile patients, and he even recommended that the physician resort to the use of bleeding and purgatives for the relief of gastritis produced by the drug. This view of Broussais is, however, excessive, and true gastritis caused by quinine need never be feared. The nervous troubles which are most commonly produced by the drug are, as is well known, roaring in the ears, with vertigo. The drug in large doses or when given to persons with an idiosyncrasy is, of course, undoubtedly poisonous. Thus Trousseau and Pidoux report the following cases:

A young nun took in one day about twenty grains of the sulphate of quinine, and on the following day forty-five grains, for the cure of an attack of asthma. Four hours after the ingestion of the poison she had loud noises in the ears, vertigo, and excessive vomiting, and seven hours after the administration of the quinine total blindness and deafness. After this delirium came on and the case required active treatment, but the patient recovered. (*Traité de Thérap.*, 8 edit., t. ii, p. 487.)

Another instance occurred in a vigorous man, the case being reported by Floyer, in which dyspnea and urticaria followed the administration of a very small dose, amounting to only three grains (*British Medical Journal*, 1886).

Rizu reports a case in which the sulphate of quinine in very small doses provoked congestion of the face, severe attacks of orthopnea, and urticaria (*Bull. de la Soc. des Méd. et Natur. de Jassy*, 1887).

Pispiris, of Athens, has also published two cases of intestinal hemorrhage in anemic malarial patients following the administration of quinine (*Galenos*, Athens, August, 1888).

Kobner has seen grave symptoms arise in a child after the hypodermic injection of five grains of sulphate of quinine, and scarlatiniform eruption take place. There was colic

and a bloody discharge from the rectum. (*Bull. Gén. de Thérap.*, 1890, p. 506.)

Grooskopff has also observed grave symptoms after the use of thirty-eight grains of quinine in one dose (*Therap. Monatshefte*, 1892), and a number of instances are on record in which hemoglobinuria has been produced by quinine.

Laveran believes, however, that cases of intolerance to quinine are rarely met with. He himself has never observed, after the administration of sulphate of quinine in the dose of fifteen to forty-five grains in twenty-four hours, anything more than roaring in the ears and fleeting deafness.

On the other hand, Bouchardat (*Manuel de Matière Médicale*, Paris, 1865, 3 edit., t. ii, p. 392) mentions a case of a patient suffering from malaria who received from forty-five to sixty grains of quinine, with a fatal result, although the patient was an adult male.

Maillot, in a case of pernicious anemia, administered, on the other hand, more than two and a half drachms of sulphate of quinine in twenty-four hours and cured his patient.

Monneret has given two drachms of sulphate of quinine a day for rebellious headache, with good results; and Giacomini has given, without inconvenience, during a period of over forty-seven days, forty-five grains to a drachm of the sulphate of quinine each day. Giacomini also records the case of a man who by mistake took no less than three drachms of the sulphate of quinine in one day without any other manifestations than great depression of the heart and nervous system. These symptoms were, however, combated with success by the aid of stimulants.

Guersent cites the case of a woman who took no less than ten drachms of the sulphate of quinine in one day. There was temporary loss of vision and hearing and the power of speech. The surface became cold and cadaverous, but the symptoms disappeared rapidly. We also find that Briquet has recorded the case of a physician who for the cure of a mild fever administered the enormous dose of fifty-five drachms of the sulphate of quinine in ten days and finally died as a result of it.

Guinon has reported the case of a neurasthenic adult in whom two drachms of sulphate of quinine were taken with suicidal purpose. This dose failed to produce death, but was followed by profound collapse, insensibility, coldness of the extremities, and cyanosis.

The dominant symptoms beyond those just mentioned were deafness and blindness. The deafness was absolute for several hours, but then disappeared. The blindness was not complete until several hours had elapsed after the ingestion of the poison. At first the pupil reacted to light, but seven to eight hours after the poison had been taken it became immovable. The urine at first was markedly increased, but afterwards was abundantly reestablished under the influence of treatment, which consisted in the subcutaneous injection of salt water, washing out of the bowel, and the abundant administration of coffee. The temperature remained normal; the pulse was good, being 120 on the first day and 100 on the second day. It has also been demonstrated by cases reported by Baills (*Archiv de Méd. Militaire*, 1885, t. vi, p. 320), Rosenbusch (*Wiener Med. Presse*, April 13, 1890) and G. Greswell (*The Lancet*, May 1, 1897) that as much as three drachms of the sulphate of quinine may be taken at once by an adult without producing death.

Laveran then reports the case of two soldiers who took this quantity of the drug. Half an hour after the drug was swallowed the patient suffered from violent cramps in the stomach, with vomiting, pallor of the face, disturbed respiration, dilated pupils, feeble, irregular pulse, and partial insensibility, with loud noises in the ears and a tendency to syncope. In other cases patients have been seen in whom quinine produced restlessness, delirium, vertigo, intoxication as from ordinary drunkenness, vomiting, and great depression of the nervous system. Cases are also mentioned by Laveran in which quinine seemed to produce hemoglobinuria, even when given in small doses, the urine becoming either red or black. This accident has been well studied and described by Tomaselli in Italy and by many Greek physicians, among whom may be mentioned Karamitzas, Theophanidis, Pispiris, Pampoukis, and Chomatianos.

Karamitzas reports an instance which he studied where hemoglobinuria followed the administration of only five grains of sulphate of quinine; and Kanellis, Pampoukis, Chomatianos and Moscato have observed similar instances. The following references may be of interest in connection with these names and in connection with additional information not given in this article:

Tomaselli, *Rivista Clinica di Bologna*, 1878, p. 119; Ughetti, *Lo Sperimentale*, 1878; Karamitzas, *Bull. Gén. de Thérap.*, July 30, 1879;

Pampoukis, "Etude sur les Fievres Palustres de Grece," Paris, 1888; Pampoukis et Chomatianos, "Recueil. Clin. et Experim. sur l'Hemoglobinurie Quinique," *Progrès Médical*, 1888; Tomaselli, "Sur l'Intoxication Quinique," *Congres de la Soc. Italienne de Med. Int.*, Rome, Oct. 20, 1888; Spyridon Kanellis, *Arch. de Méd. Nav.*, 1888, p. 476; Pasquale Moscato, *Gazzetta degli Ospitali*, 1890, Nos. 17-19; Hare, *THERAPEUTIC GAZETTE*, July, 1892; Vaughan, "De la Quinine dans l'Hematurie Malarienne," *Assoc. des Med. Americains*, 1892; Pasquale Moscato, *Gazzetta Medica Lombarda*, June 8, 1896, and *Giornale Internazionale delle Scienze Mediche*, March 31, 1897; Raoul Dumas, *Arch. de Méd. Nav.*, April, 1897; Grocco, "Hemoglobinurie Quinique chez les Malariques," *La Settimana Méd.*, Jan. 2, 1897.

Clarac (*Arch. de Méd. Nav.*, April, 1896) believes that the rarity of quinine hemoglobinuria necessarily depends upon some individual predisposition, the malarial poisoning simply acting as an added cause, for hemoglobinuria due to quinine is never seen when the drug is administered in full doses during typhoid fever or in acute articular rheumatism. According to Pampoukis hemoglobinuria due to quinine may be avoided by the administration of cinchonine.

Tomaselli asserts that the quinine produces not only the hemoglobinuria, but also ictero-hematuric fever easily confounded with the ictero-hematuric fever of severe infection.

The symptoms of ictero-hematuric quinine fever, according to this author (*Congres de la Soc. Italienne de Medecine Interne*, Rome, October, 1888), are that three to six hours after the ingestion of the quinine the patient is seized with a severe rigor. The pain is felt in the loins and lumbar region and unceasing bilious vomiting may occur. These symptoms constitute the first period of the intoxication and usually last about three hours. They are succeeded by a considerable elevation of temperature, amounting to hyperpyrexia in grave cases. With this rise in temperature abundant hematuria supervenes. The urine is passed frequently and is accompanied by alvine evacuations of a sero-bilious character, and dyspnea is also present. The entire surface of the body may be yellow in hue. The bloody urine contains altered blood, fibrin, cylinders, epithelial cells, and bile pigment. Tomaselli has observed both hematuria and hemoglobinuria, but believes that the latter is the more frequent condition. At the end of twenty-four to forty-eight hours

the attack terminates, defervescence is rapid and may produce collapse. Laveran asserts that this ictero-hematuric quinine fever has never been observed by him, and he seems to seriously doubt whether the quinine is ever responsible for this condition.

In regard to quinine eruptions Laveran states that they are quite commonly seen. Sometimes they are urticarial in character; in others they resemble scarlet fever. Cases of this kind have been reported by Floyer, Rizu, and Kobner.

Witherspoon has observed a remarkable example of quinine scarlatiniform erythema occurring in a woman. Fifteen minutes after the ingestion of the quinine there was intense itching and burning of the skin of the extremities and then of the body. The skin became very red and swollen. There was congestion of the conjunctiva and profuse secretion of tears, edema of the face, and roaring in the ears. The tongue became swollen and the pharynx became reddened; with the scarlatiniform eruption there was headache, nausea, vomiting, and the urine was scanty and high-colored. In the course of a few days the skin desquamated in large flakes as it does after scarlet fever. A similar desquamation took place in the mouth, the pharynx, and the tongue. Other doses of quinine given at other times produced the same effects in this patient.

Feulard reports a case of scarlatiniform erythema before the Société de Dermatologie, February 11, 1897; and James Johnston has reported a case of bullous dermatitis from the same cause. These quinine erythemas are evidently due to individual predispositions, just in the same way that small doses of antipyrin produce these eruptions in certain individuals.

According to de Grissac the exanthema which is produced by the administration of quinine internally is probably due to the irritating action of the alkaloid, a small portion of which is eliminated by the sweat (Guyochin, *The Sulphate of Quinine Eliminated in the Sweat as the Sulphate of Quinine*, Paris Thesis, 1872), and it is probable that this elimination in certain individuals is more pronounced and that the skin in consequence becomes greatly irritated.

In regard to disorders of vision, the deafness, and amblyopia, Laveran points out that quinine most frequently produces these manifestations if we except vertigo, and it is believed that the vertigo is largely dependent upon changes produced by the drug in the

labyrinths; although, on the other hand, as pointed out by Lermoyez, this drug in cases of lesions in the labyrinth causing vertigo often does great good. Laveran states that quinine amblyopia is very rare, is generally complete and bilateral. A large number of references are given.

Laveran finally concludes his article by discussing the oxytocic properties of this drug. He first points out that certain writers have asserted that the prescribing of quinine to pregnant women after the third month is capable of producing abortion. Petitjean, Delieux de Savignac, Rayer, Merz, Monteverdi, Lewis and Warren have called attention to this fact, and in addition he quotes Chiara, Bazin, and Bertrand. Laveran seems inclined to believe, however, that the abortion in cases where quinine has been given has depended upon the malarial infection, and he quotes Duboue, Cordes, Bonfils and Schwab as stating that quinine is not an abortive agent, but that it has a stimulant action upon the uterine muscle during labor.

[In connection with this article we may perhaps be allowed to call attention to an editorial upon the Untoward Effects of Quinine published some time ago in the *THERAPEUTIC GAZETTE*, and to one or two Progress items dealing with the same subject. To those who are interested in the subject of the danger of quinine producing malarial hematuria or hemoglobinuria, we may refer to the article by the editor of this journal in the *THERAPEUTIC GAZETTE* for July, 1892, which consisted in a collective investigation extending over all the southern portion of the United States where malarial fever is prevalent.

In regard to the influence of quinine upon the pregnant uterus, we may refer to another original article in the *THERAPEUTIC GAZETTE* of July 15, 1897.—ED.]

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#### REMARKS UPON THE PROPER SURGICAL TREATMENT OF TUBERCULOUS BONE DISEASE.

CABOT (*Boston Medical and Surgical Journal*, Jan. 27, 1898) contributes a valuable paper on this topic. He says that the surgical treatment of tuberculosis of bone is a subject about which it is difficult to generalize, for the varying conditions of the patient and the part affected often call for a corresponding variation of the plan of treatment.

Tuberculosis is an infective process against

the tissues strive to protect themselves various degrees of success in different of the body and in different persons. process by which this protection is obtained is mainly by the formation of a wall of active tissue, more or less dense, about tuberculous mass, shutting it in and preventing its spread through the tissues. When protective effort is of sufficient power to successfully resist the tuberculosis, it does so thoroughly encapsulating the process, and at last the masses of bacilli, cells and waste products of the cells are compressed within a slowly contracting capsule which undergoes cheesy degeneration until, finally, they may even be changed to chalky concretions.

The success of this limiting effort on the part of the tissues depends in a considerable degree upon the vigor of the individual, so that in tuberculous disease of bone (as is well known in tuberculous disease in the lungs) a decided improvement in the surroundings and habits of the patient may result in about a cessation of the process.

In many cases of bone tuberculosis the patient's reliance must be upon the power of nature to limit the process and must be directed wholly to the patient's general condition, with the added benefit of rest to the diseased part, which our back-braces, trusses and other fixative apparatus pro-

vide in numberless cases of recovery from tuberculosis in children attest the effect of Nature's cure.

It is most that we can hope from operation in tuberculosis of bone is the removal of a focus which is acting injuriously in two ways, first, by interference with the functions of the bone involved; and second, by the introduction of the system with poisonous products elaborated at the seat of disease. Tuberculosis of bone is generally a second focus following some deeper infection. The natural result therefore is, as it were, only a palliative, leaving somewhere the primary focus untouched. This primary focus is situated in the lymphatic system; not only in the glands connected with the respiratory or digestive organs, but also, this primary focus of the disease is well encapsulated, so that when the more serious focus of the disease is removed, the patient's return to health is rapid and often long enduring.

It is interesting to consider what degree of brightness we can obtain in the re-

moval of these local tubercles. By the amputation of a limb above the seat of disease the removal of the local focus is thoroughly accomplished. Occasionally a localized tuberculosis can be entirely dissected out with a considerable margin of healthy tissue around it. When this can be done without bringing the tuberculous parts in contact with the healthy, of course that will constitute a thorough removal. This is rarely possible in tuberculosis of bone on account of the difficulties of the deep dissection; and almost invariably the parts about are more or less infected with the bacilli during the process of removal. In operation upon joints this is particularly true; for the infected synovial membrane is often very difficult of removal, as it dips in between the ligaments and the surrounding muscles and must be dissected away piecemeal. During this slow dissection the freshly wounded surfaces are in constant contact with the tuberculous material.

Fortunately the tissues are able to dispose of a moderate dose of the poison, so that a removal that is approximately thorough answers almost as well as if it were absolutely so. It is probable that microscopical amounts of tuberculous material which are left behind are actually destroyed and removed by the tissues. Larger portions are encapsulated, and it is interesting to note that these operations, which are followed by thoroughly satisfactory healing, often leave behind them little foci of tuberculous material buried in the cicatricial tissue.

Accepting, then, the position that in these cases the surgeon's operation is necessarily incomplete and that Nature must even afterwards do much to accomplish the cure, it is plain how important it is for the surgeon to do all in his power to improve the patient's general condition and to so arrange his operation as to obviate a long confinement in bed, if possible.

The removal of tuberculous material must be as thorough as it can possibly be made, the bony focus being hunted up and entirely removed. Where possible, a considerable surrounding portion of healthy bone should be removed with it. This is usually accomplished in resections of the knee and elbow, and also in those cases of disease of the hip in which the tuberculous process is confined to the head of the femur. When, however, the pelvic bones are also implicated, this is more difficult of accomplishment.

When tuberculosis attacks bone in their

continuity where it is impossible to remove considerable portions of the bone without seriously interfering with the functions of the part, surgeons usually resort to curetting for the removal of the diseased portions. As these portions are softened, they can usually be quite thoroughly removed with the sharp spoon, and the harder consistency of the surrounding healthy parts gives us considerable help in determining when the diseased portion has been thoroughly removed. After such an operation it is not uncommon to see the surface curetted remain in a carious condition for some little time. This is due to death of the surface of the bone bruised by the instrument. And in some cases the presence of the tuberculous process reinfects the bone and leads to a continuance of the tuberculosis.

In the carpus and tarsus this recurrence of tuberculosis is almost certain to occur. This is doubtless due in part to the comparatively ill-nourished condition of these bones. Surrounded as they are by cartilaginous joint-surfaces, their periosteal envelope, through which they receive nourishment, is comparatively scanty. It is usually well, therefore, to wholly remove any of these bones that are diseased.

In the wrist the functional result after a removal of many of the carpal bones is usually not good, but in the ankle these operations, when undertaken in the young, give excellent results.

This brings us to speak of the effect of age upon our treatment of tuberculous lesion of bone. So great is this effect that we might almost say that the success of treatment in cases of tuberculosis, other things being equal, is in inverse ratio to the age—that is, the older the patient, the worse the prognosis.

It is often a nice question of judgment whether, in a certain patient, to choose a partial operation, as the removal of the diseased tarsal bones, for instance, or to give up any attempt to save the joint and accomplish a thorough removal of the tuberculous parts by amputation.

This same question as between a partial operation and amputation also arises in cases much exhausted by the disease, and many patients will recover after an amputation, which enables them to quickly leave the bed, who would succumb to the long suppurating process following extensive resection of the tuberculous parts.

The importance of getting patients quickly

out of bed and out of doors has been dwelt upon. The local treatment should consist in giving the parts absolute rest and, if possible, applying gentle, even pressure over the whole seat of the disease. In some cases when removal has been very thorough, a complete closure of the wound may be adopted; and some cases of resection will do well when the wound is wholly closed or where only a slight dependent opening is left for drainage for a short time. In other cases where, owing to the difficulties of the operation, removal of the tuberculous parts is less complete, this opening is made not only to provide drainage but to afford access to the parts for subsequent treatment, with the hope of enabling and assisting the tissues to throw off the tuberculous process. This may be done by leaving the bony cavity widely open and packed with gauze, or, in case of a joint, by carrying through it large wicks of gauze.

We have in iodoform a substance which has, in a measure, a specific effect upon tuberculous material. It seems to act by stimulating the tissues to an adequate resistance of the tuberculous material left after operation. In a case of an extensive cavity iodoform is generally applied in the form of iodoform gauze or by the means of setons, which are very useful in the ankle- and wrist-joints. When we have considerable sinuses which it is difficult to reach in the application of gauze, iodoform oil affords a good means of applying the drug to the deeper parts, and often excellent results are obtained by its use.

Even after healing has been accomplished, it is usually important to protect the parts from motion for a considerable time by the application of apparatus, as, if motion is allowed, the disease is apt to reappear.

Sometimes in connection with the tuberculous process in bone we have very large abscesses in the soft parts. When all parts of these abscesses can be reached and thoroughly curetted, it is not uncommon to obtain a complete closure of the greater part of the abscess by stitching its walls together with deep-buried stitches, and if this can be accomplished it is the best method of bringing about a cure. In many cases, however, this thorough curetting is not possible, notably in cases of psoas abscess.

The danger of interference where the operation cannot be thorough is that, if large portions of tuberculous material are left, the infection of the denuded parts which have been curetted rapidly takes place, and this

new invasion of the freshly wounded tissue is often accompanied by considerable hectic fever, so that the patient is rather worse off instead of being improved by the attempt at thorough operation.

There is also considerable danger of infecting the parts with other organisms beside the bacilli and thereby bringing about a fever from infection by other pus organisms. In those cases, therefore, where the whole abscess cannot be thoroughly treated, it is wiser to make a small opening, large enough to allow of the discharge of the tuberculous cheesy masses which exist in these abscesses, and to then be content with the injection of iodoform oil and thorough drainage.

The gradual contraction of the walls of the abscess by reason of the cicatricial tissue surrounding it, and also by reason of the intra-abdominal pressure in cases of psoas abscess, usually brings about a satisfactory condition of improvement, although absolute cure of one of these abscesses is extremely rare.

#### THE SURGICAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.

GOELET publishes a paper under this heading in the *American Journal of Obstetrics and Diseases of Women and Children* for January, 1898. He says the surgical procedures which may be adopted in this class of pelvic tumors are: curettage, division of the uterine arteries, myomectomy, both vaginal and abdominal, and hysterectomy.

Since electricity affords only symptomatic relief in a certain class of cases, and this is not always permanent, its use may be limited to inoperable cases, classing under this head cases where the constitutional condition or cardiac disease prohibits or where the patient refuses to consent to operation. The prejudice against operation for uterine fibroids is being rapidly removed, first, because the mortality of total removal has been greatly reduced, and second, because the feasibility of more conservative procedures has been demonstrated. For instance, an extensive myomectomy, where the uterus is the seat of numerous fibroids, is successfully done to-day and the uterus saved, whereas only a few years back the whole organ was removed in such cases. Again, it has been shown that complete atrophy of certain small tumors of this character may be brought about by permanent obliteration of the uterine arteries, which diminishes their nutrition. The possibility of conservative surgery is appreciated

because the evil results of some of our older methods is pretty generally understood. Hence the author would say the prejudice against operative interference is being removed because surgery is less radical and the mortality of radical operations is reduced.

Of the operations enumerated above curettage may be regarded as a palliative measure only, to be employed for controlling temporarily the hemorrhage, which is often profuse and persistent, and which so rapidly exhausts the strength of the patient. It is to be employed also to overcome the obstinate endometritis when any procedure less radical than hysterectomy is done, such as division of the uterine arteries or myomectomy. It is a secondary but nevertheless an important auxiliary measure which should never, in the author's opinion, be neglected. It is only a temporary expedient against hemorrhagic endometritis, because the endometrium is rapidly reproduced, and, since the same causes which produced this condition still exist and have not been removed, the hemorrhage must sooner or later occur.

Of the method of performing this operation, which is generally regarded as simple, much may be said to advantage. It involves more risk in the fibroid uterus, because the walls may be quite thin in places, or soft and spongy and easily perforated. Again, owing to the irregularity of the cavity it is quite difficult in some cases to make the curettage thorough. The ordinary dilator employed for dilating the cervix is frequently inadequate because it is not sufficiently rigid, especially if the growth is near or encroaches upon the cervix, and because the blades of the instrument are too short to effect dilatation sufficiently far up. Great care should be exercised also to avoid exerting too much force or allowing the instrument to slip and produce laceration.

The ordinary curette is likewise inadequate in some cases, because it is too short and does not reach far enough up into the cavity, and it has not sufficient rigidity to enable the operator to remove all that is necessary.

The irrigator ordinarily used for washing out after the curettage is also too short to reach the full length of the cavity, and the tubing employed for conducting the irrigating fluid is too small to furnish a stream of sufficient force and volume even if the reservoir is placed high.

For curettage of the fibroid uterus, then, special instruments are required, and more

than usual care is necessary, both for safety and thoroughness.

In all of these cases the curettage should be followed by a copious irrigation, with a double-current irrigator, of a hot one-per-cent. solution of lysol to remove clots and débris, and after this a solution of iodine should be used through the irrigator. The strength of this solution may vary with the necessities of the case—from half to an ounce of the compound tincture of iodine to a pint of water. In the author's opinion this is the only way iodine should be applied to the interior of the uterus.

The operation for ligature of the uterine arteries, for the purpose of producing atrophy by depriving these tumors of sufficient circulation and nutrition, has been successful when it has been done in appropriate cases and when obliteration of the vessels has been made certain by dividing them. The author has pointed out elsewhere the fallacy of depending upon simple ligation to effect permanent obliteration of these vessels, chiefly because it is difficult to isolate them so that the ligature will destroy the artery; and if a mass of tissue is included in the ligature with the vessel, it shrinks in consequence of the compression and the ligature loosens. Consequently the circulation may be, and frequently is, restored. This would, of course, fail to accomplish the purpose of the operation.

The technique of this operation is as follows: First, the uterus is curetted, and if hemorrhage has been a symptom it is irrigated with a solution of iodine. Then a traction ligature is passed through both lips of the cervix, by means of which it is drawn well down and over to one side, the patient being in the lithotomy position with a short-bladed perineal retractor in the vagina. A semicircular incision is made through the vaginal roof on one side at the cervico-vaginal fold, and the base of the broad ligament is exposed by careful dissection with the fingers, hugging the side of the uterus. When the pulsation of the uterine artery can be detected, a stout silk ligature is passed around it by means of a specially devised aneurism needle or ligature carrier, and tied. Especial care is necessary to avoid including the ureter in the ligature, as at this point it is only half an inch from the uterus. The tissue between the ligature and the uterus is then divided with the scissors, and the uterine end of the artery is then picked up with a pressure-clamp and tied with silk or catgut.

The same maneuver is repeated on the other side. The vaginal incisions are closed by continuous catgut suture and a loose dressing of gauze placed in the vagina. Of course, strict aseptic measures should be carried out, both in the preparation for and during the progress of the operation.

The limitation of this operation to such tumors as may be influenced by cutting off the supply of the uterine arteries is important, and upon this depends the success which may follow. It would be unreasonable to expect very large tumors which fill or nearly fill the abdominal cavity to be influenced materially by this procedure, since the other sources of blood-supply are greatly increased as the tumor develops out of the pelvic cavity. The uterine arteries are not the chief source of nutrition in these cases, as they are when these tumors are smaller. The other main channels of circulation, the ovarian arteries and round ligament arteries, are not only greatly increased in size, but these tumors are frequently fed by new vessels established through adhesions with adjacent organs and structures. When, however, the tumor is small or has not developed above the level of the umbilicus, the uterine arteries furnish the chief blood-supply. Likewise, when a subperitoneal tumor springs from or near the fundus, it gets its blood-supply chiefly from the ovarian arteries, and cutting off the uterine arteries cannot be expected to influence the growth materially in these cases.

This operation should therefore be limited to small interstitial growths which have not developed beyond the umbilicus, and small subperitoneal tumors which spring from the wall of the uterus below the fundus. When the operation has been confined within these limits, and when the author has made permanent obliteration certain by dividing the arteries, complete or almost complete atrophy of the tumor has followed.

Myomectomy ranks deservedly first in the order of conservative operations for uterine fibroids, being radical in its conceptions, though it preserves both uterus and ovaries. Until quite recently this operation had a very limited application and its possibilities were not fully appreciated. For some time past pedunculated tumors have been removed, and occasionally one or two small fibroid nodules projecting above the surface of an otherwise healthy uterus have been also removed by enucleation; but where there were numerous interstitial masses, or even

one large tumor, the uterus was invariably sacrificed together with the appendages. Even now, though the successful possibility of an extensive myomectomy has been satisfactorily demonstrated, there are many uteri being sacrificed every day for small tumors which might easily be removed without the uterus.

It is possible to remove successfully not only one or two but numerous interstitial fibroids, large and small, situated deeply in the uterine wall, shelling them out of their bed, closing the wound afterward by suture, and leaving the greatly hypertrophied uterus to regain its normal condition. The operation is one which requires much more operative skill than hysterectomy, and where it is extensive it is fraught with greater danger on account of hemorrhage and the increased risk of sepsis. Hence the strictest aseptic technique must be carried out. The ligatures and sutures must be applied so as to control absolutely all bleeding and close the wounds in the uterine wall perfectly, so as to avoid dead spaces where blood or serum may collect and undergo decomposition. There is practically no limit to the number of tumors which may be removed in this manner, and though the uterus may afterward resemble a battle-scarred veteran, it is saved to the patient and will subsequently recover and may be a useful organ.

A few points in the technique may be useful to those who are not familiar with the operation. The abdomen is opened by an incision sufficiently large to deliver the uterus with tumors out of the abdomen, when this is possible; the peritoneal cavity is protected by a sterilized rubber sheet or flat gauze pads, and when much bleeding is anticipated a rubber ligature is placed around the cervix. When the uterus cannot be lifted out of the abdominal cavity the intestines must be protected by gauze pads, which wall them off from the field of operation. Sometimes the Trendelenburg position is a decided advantage. In removing pedunculated fibroids a flap is made on either side of the pedicle at its base of attachment to the uterine wall. These flaps are stripped down and the pedicle severed by a V-shaped incision below the level of the surface of the uterine wall. Any redundancy of the flaps is trimmed off afterward. Bleeding vessels are controlled by pressure forceps, and, when necessary, a ligature, but both are to be avoided when possible. Free bleeding will be controlled frequently by the sutures employed for

closing the wound, which may be applied immediately before the removal of other masses is proceeded with, or the wound may be packed tightly with sterilized gauze until all the tumors are removed. In removing sessile and deep interstitial growths the uterine wall over the center is split and the capsule of the tumor is laid open; then the tumor is shelled out of its bed by the fingers or the handle of the scalpel. It is important before closing the wound to trim out all loose tissue which would subsequently slough. Perfect coaptation is absolutely essential, hence deep-buried sutures, preferably of fine chromicized catgut, should be employed; Lembert sutures of the same material or fine silk used for the outer layer closing the peritoneal surface.

Two points must ever be kept in mind—the liability to hemorrhage and sepsis—and every precaution should be taken to avoid both. With care, however, the chance of either may be reduced to a minimum.

Usually this operation is best executed through an abdominal incision, as it affords freer access and permits more accurate work. But when there are only one or two small nodules projecting from the uterine wall low down near the cervix, their removal may be accomplished through a vaginal incision either anteriorly or posteriorly to the cervix, according to their location.

Myomectomy, then, should be the operation of election in all cases where it is possible without entailing too great risk. So strongly is the author convinced of the possibilities of this operation that he believes it is applicable in seventy-five per cent. of the cases where now hysterectomy is generally done.

Submucous fibroids projecting into the uterine cavity may usually be removed through the cervix, but it may prove a tedious and difficult operation if the tumor is pedunculated or detached, on account of the difficulty in dilating the canal sufficiently to permit free access into the uterine cavity. When these tumors are very large, however, and their development causes the uterus to project well up into the uterine cavity, a correct diagnosis of their exact character is not always easy, especially if the cervix is small and the canal is contracted. If a correct diagnosis can be made in these cases, it is not always possible to empty the uterus through the vagina. It is possible and feasible, however, in such cases to empty the uterus through an abdominal incision,



as in Cæsarian section, and leave the uterus behind if the walls have not undergone degeneration, thus saving it. If, then, upon opening the abdomen, either for the purpose of a myomectomy or a hysterectomy, it is found that the tumor is not in the wall of the uterus but within the cavity, the uterus should be delivered through the abdominal incision, a rubber ligature placed around the cervix, the abdominal cavity protected by a rubber dam or pads of sterilized gauze, and an incision made in the anterior uterine wall from the fundus to near the attachment of the bladder opening, into the cavity. If the tumor is pedunculated it is easily removed by severing the pedicle near its attachment. If it is broadly attached to the uterine wall the mucous membrane, with the capsule, is split and the tumor shelled out. Active bleeding is controlled by ligature or by sutures which compress and coaptate the raw surfaces. After the uterus has been emptied the cavity is washed out if necessary, and a gauze drain or rubber drainage tube is carried down through the cervix into the vagina. The incision in the uterine wall is closed by deep interrupted sutures of chromicized catgut, which include the muscular layers down to but not the mucous membrane. Done in this manner there is absolutely no chance of infecting the peritoneal cavity, and there is little or no blood lost. Though this operation may involve more risk than a hysterectomy in the same condition, it is fully justified, since it preserves the uterus, which may subsequently become a useful, functioning organ.

Of hysterectomy there is little to be said except as to its limitation. The author cannot now believe that vaginal hysterectomy for fibroid tumors is necessary or justifiable, since tumors which are sufficiently small to permit of their removal in this manner either may not be interfered with, or, if they are causing trouble, atrophy may be secured by dividing the uterine arteries; or if the condition is not appropriate for this operation, the abdomen may be opened, a myomectomy done, and the uterus saved. The conscientious surgeon would surely not sacrifice the uterus, to say nothing of the unnecessary risk to which the patient would be submitted, when these other channels are open to him. Abdominal hysterectomy for uterine fibroids is ever a justifiable operation in those conditions where other operations are not feasible, and especially when the tumor is so large as to cause great inconvenience from its size,

or where the tumor has undergone degeneration or the appendages are hopelessly diseased.

The technique of this operation has been thoroughly discussed and is familiar to us all. Likewise the pros and cons of supravaginal amputation and total extirpation have been gone over again and again, and there would be nothing gained by repetition here, since the adaptability of either method is pretty generally understood.

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AN EXPERIMENTAL INVESTIGATION  
INTO THE TREATMENT OF  
GUNSHOT WOUND.

In the *Zeitschrift für Chirurgie*, 47 Bd., 2 and 3 Heft, 1898, TAVEL, following the general plan of experimentation pursued by La Garde, comes practically to the same conclusions—i.e., that extremely virulent bacteria carried by bullets into the tissues regularly bring about infection—and furthermore announces it as a fact that cleansing of the bullet track by antiseptic washing or cauterization is futile in preventing the development of general symptoms. The death of the animals experimented upon occurred when the bullet was fired through infected material and when the wounded part was wrapped in fabric which had been infected.

Following this article of Tavel's is one by KOHLER detailing his laboratory experiments conducted with the idea of discovering what means are likely to prove most efficacious in combating the infection incident to a gunshot wound. Kohler states that we may take it for granted that gunshot wounds are infected, frequently because the bullet itself is not sterile, but usually because in its course through the clothing and skin surface it will necessarily carry germs with it. It is evident, however, that this infection is not necessarily by the most virulent germs, and is often quantitatively slight, so that the tissues themselves, even though they are wounded and devitalized, may be sufficient to inhibit the further development of germs. Kohler in his experiments infected the ends of bullets with germs that are virulent to guinea-pigs. As a result of his work he holds that in the treatment of uncomplicated gunshot wound it must always be remembered that it is possible that the wound may be absolutely sterile, or that it may be but slightly infected and with non-virulent germs, or that it may be abundantly infected with virulent germs.

As to which of these three conditions is present it is impossible to determine at once, hence the earliest treatment should be the application of a sterile bandage for the purpose of preventing secondary infection from without. A reactionless course shows the absence of infection, or a very slight one. When the wound is obviously infected drainage is always indicated. The use of the thermo-cautery, tincture of iodine, five-percent. carbolic acid solution, all increase the virulence of the germs which are not directly reached by these agents and encourage the quick development of blood poison. The principle of closing at once all gunshot wounds is an extremely bad one. The simple and uncomplicated ones may be thus treated, but those which are extensive, and especially those into which have been carried portions of clothing, should be drained.

In this relation it is interesting to note that Müller as a result of a research comes to the conclusion that drainage must be regarded simply as an indifferent medium which provides for the discharge of wound secretions. Its importance depends upon the fact that it relieves tension and puts the wound in a favorable condition for healing. Tincture of iodine, he states, is an agent which penetrates tissues and weakens bacteria. The thermo-cautery, whilst destroying bacteria with which it comes in contact, favors the destruction of the tissues. Energetic means employed against the infection of gunshot wounds are useless.

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*EXTRAPERITONEAL RUPTURE OF THE  
BLADDER COMPLICATED BY FRAC-  
TURE OF THE PELVIS; REPORT  
OF A RECENT CURED CASE,  
WITH A STUDY OF NINETY  
CASES COLLECTED FROM  
LITERATURE.*

MITCHELL reports the following case in the *Annals of Surgery* for February, 1898:

A Lithuanian woman, aged fifty-two years, was admitted May 20, 1896, to Johns Hopkins Hospital, in the service of Dr. Halsted. On May 19, about 11 P.M., ten hours before admission, she was thrown from a wagon, the wheels passing over the hips and lower abdomen at the level of the anterior iliac spines. On admission at 9 A.M., ten hours after the accident, the pulse was 120; temperature 100° F.; mental condition seemed one of stupor. There was frequent moaning, and when the left hip was moved she cried out with pain. Over the lower abdo-

men and thighs the skin had been scratched and was covered with gravel and dirt; the entire superficial epidermis seemed to have been brushed away, but at no point was the fat exposed. The abdomen was not distended nor tender except over the skin bruises, and there was no muscle spasm nor any evidence of intra-abdominal injury. Catheterization at 10.30 A.M. yielded 140 cubic centimeters of smoky urine, with a sediment of blood-corpuscles; and at 2.30 P.M., four hours later, 160 cubic centimeters of similar urine. On distending the bladder with 500 cubic centimeters of boric acid solution, not more than 250 to 300 cubic centimeters could be withdrawn, and examination by means of a speculum showed the bladder to be quite empty, demonstrating conclusively a rupture. It was impossible to ascertain whether urine was passed before admission, but between admission and operation there was no attempt to void urine, and there was no dribbling.

Dr. Bloodgood operated seventeen hours after the accident, under ether. On opening into the space of Retzius, through the middle line, it was found filled with a large quantity of blood-stained urine, which was not ammoniacal, and there was as yet no sign of inflammation. The peritoneum was pushed up to within four centimeters of the umbilicus, and in the lumbar region almost to the margins of the twelfth ribs. This fluid was carefully sponged out, and the peritoneal cavity opened in the middle line to examine the bladder for any intra-peritoneal opening. As none could be found and there was no fluid in the peritoneal cavity, the peritoneum was closed with a double row of silk sutures. The opening in the bladder was demonstrated by passing a silver catheter through the urethra. It appeared to be about two centimeters to the left of the median line at the level of the pubes—that is, just behind the seat of fracture, which was in the ramus of the left pube. The line of fracture was oblique, and two ragged points projected towards the bladder. The bladder wound was closed with silk sutures, not including mucous membrane. Lateral incisions were then made in both inguinal regions, and the three wounds were packed with bismuth gauze, the upper half of the median incision being closed with two mattress sutures in the recti muscles, and a continuous subcutaneous silver suture. There was no loss of blood, and the pulse was excellent at the end of the operation.

Temperature 100.2° F.; pulse 106. Cultures and cover-slips from the extravasated fluid were negative, and there were only a few leucocytes.

The patient passed a fairly comfortable night. From 8 P.M. the day previous until noon the following day she was catheterized seven times, twelve to thirty-five cubic centimeters of urine being obtained each time, amounting in all to 162 cubic centimeters of bloody urine. The gauze on the abdomen was saturated with urine, showing that the sutures of the bladder had not held or that there had been another rupture. Temperature 102.2° F.; pulse 106 to 110; respiration 30 to 35; condition of stupor more marked than on admission (3.30 P.M.). Patient placed in bath of water at 100° (8 P.M.), and in four hours the pulse was 100 and of better quality; respiration 24, and decidedly improved; temperature 100.8°. The condition of stupor was replaced by a much brighter mental state, and the patient looked a great deal better.

The patient was taken out of the tub five days later for four and a half hours, during which time no urine leaked from the wound. There was some pain and a little hemorrhage. Removal of the packing was followed by a rise of temperature to 102° F., but no discomfort.

The patient remained almost continuously in the bath for eighteen days, being removed only for an hour at a time to clean the tub, and then crying to be returned. The pulse was good, but there was continuous fever from 100.5° to 101° F., and on the seventeenth day, after examination and removal of two small pieces of bone from the fracture, the temperature reached 103.5°. The packing was taken out May 26 (seventh day). The lumbar wounds closed two days later, and the brush-braze wound had entirely healed. The abdomen was soft and there was no evidence of infiltration beyond the suprapubic sinus. Appetite and general condition good.

At this time there was more or less fever and several shaking chills, the temperature in one instance reaching 107° F. Examination of the blood was negative, and there was no leucocytosis. The urine showed a faint trace of albumen and many polymorphonuclear leucocytes. The abdomen was soft and not distended, and nothing could be found indicating any accumulation of pus. Spleen and kidneys not palpable. On irrigation the opening between the suprapubic wound and

the bladder was not large enough to prevent distention of the bladder, and 250 cubic centimeters could be retained. On examination of the suprapubic wound a small cavity was found just to the left of this sinus, and communicating with it by an opening two to three centimeters in diameter. This was thoroughly dilated with the index-finger and packed with bismuth gauze. Extravasation of urine into this cavity probably explains the chills and temperature.

Following the dilatation of the cavity named the temperature fell rapidly, and there were no more chills and no rise of temperature. The patient was removed from the bath on June 28, forty days after the accident. Since then the sinus and bladder have been irrigated daily with boric acid solution, and on July 20 the gauze removed from the sinus was slightly moist with urine. The sinus closed rapidly. Two months after the accident the patient was about in a wheel-chair and fairly comfortable, with the exception of some swelling and pain in the left leg and hip.

Improvement continued progressively until the patient was discharged well on March 3, 1897. She walks without difficulty, and there is no evidence of mobility at the seat of fracture.

Considering the great numbers of surgical cases of all kinds treated in hospitals, neither fracture of the pelvis nor rupture of the bladder is of frequent occurrence; for statistics show that in Berlin in 10,867 surgical cases there were only three ruptured bladders, and in London in 16,711 cases only two. In the Johns Hopkins Hospital, among 7000 surgical cases there have been three ruptured bladders.

It is generally stated that fracture of the pelvic bones compose about one per cent. of all fractures. Either lesion is a serious one, but with the two combined the prognosis is always grave.

The injury is met with much more frequently in men than in women, and most commonly between the ages of twenty and sixty—that is, in the most active period of man's life, when his habits and occupation expose him to violence. Harrison, of Dublin, has thought the greater frequency in men due also to the greater size of the female pelvis, and because of the pad offered by the uterus as a protection to the bladder. In boys the bladder is not as likely to be allowed to become distended, an important factor in the causation of rupture; while after sixty a

man has usually retired from active and dangerous service.

The symptomatology is quite definite. After the accident the patient is usually unable to walk or even to rise from the ground, and is often rendered unconscious, though accounts are given of patients walking some distance. Peaslee reports a case of a man who, with seven fractures and a ruptured bladder, could actually walk a few steps. The subjects often describe a sensation of something tearing within them at the time of accident. They are brought to the hospital in a semi-stupid condition, complaining of intense pain in the hypogastric region, or at the seat of fracture. Many go at once into a state of collapse or coma, from which they never rally, dying in a few hours. A pretty constant and characteristic symptom is a great desire to micturate, with either total inability to pass any urine or the passage of a small amount of blood-stained urine or pure blood. Sometimes, however, urination is not interfered with, and the patient voids perfectly clear urine. These are rare exceptions. Again, the patient may at first pass no urine, but after a time be able to do so. There may be one or repeated shaking chills.

The prognosis has always been grave, though with the progress of surgery the death-rate has greatly lessened. Hippocrates thought rupture of the bladder necessarily fatal, while Galen admitted the possibility of recovery in extraperitoneal injuries. In 1878 Bartels collected 169 cases of ruptures of all varieties, with a mortality of 89.3 per cent., and at that time there was only one recorded recovery in intraperitoneal rupture. Cramer in 1896 gave the mortality for all forms as fifty-four per cent. This drop in the death-rate has been to a large extent due to the improved treatment of intraperitoneal cases. In our ninety reports there were fifteen recoveries, making the mortality 83.3 per cent. Taking only those which have occurred in the last fifteen years, we find twenty-four, with seven recoveries—*i.e.*, a mortality of 70.8 per cent.; so that in extraperitoneal rupture the decrease in deaths has not been so great, and it is still considered a very grave injury and one whose treatment has been rather unsatisfactory. When we consider how likely it is to have only recoveries reported, it is not probable that this estimate is an exaggerated one. In the majority (fifty-five per cent. of the collected cases) death occurred in the first four days, while in the first week seventy-three per cent. died. Those

surviving the first few hours rally from the shock and later show signs of peritonitis or extravasation of urine; the lingering cases die generally of septicemia.

The treatment, therefore, is plainly indicated, *viz.*, immediate evacuation of the extravasated urine and prevention of reaccumulation by proper drainage and suture.

As far as the fracture of the pelvis is concerned little is to be done except to fix the parts, though it is sometimes necessary to remove spicules of bone or wire the fragments together.

To get rid of the extravasated urine has been a simple matter, but the question of efficient drainage seems to have been a difficult one. The earliest cases were treated by hot applications, leeches, and blood-lettings, and two recoveries are reported in fifty-three cases where no other treatment, save these and catheterization, was employed.

In all thirty-seven cases were treated by various operative procedures with a resulting mortality of 64.9 per cent. In many of the recoveries the convalescence has been slow and tedious, with a history of long continued suppuration, and the existence of one or more fistulous tracts for months or years.

Statistics show nothing as to the advantages of early operation, for there were more recoveries where the operation was in the second week. But we know that it is best to operate as soon as possible, and it is a question as to whether these late cases would not have recovered spontaneously by rupture of the abscesses and formation of fistulæ.

The first attempts at operation amounted merely to incisions for extravasation plus a catheter retained in the urethra. Of eight cases so treated, three recovered. The recoveries were cases which had gone on to abscess formation, and all that was done was to open the abscesses.

In 1845 Walker, of Boston, first employed lateral perineal cystotomy in a case of ruptured bladder, and drainage through this incision was successful, and the patient recovered. After that perineal incision and drainage was the favorite method, and in sixteen cases there were four recoveries.

Abdominal incision was employed five times, with one recovery; and then suprapubic cystotomy, with or without a counter incision in the perineum, took its place, and has been up to the present time the ordinary method of dealing with this injury, but of eight patients treated in this way only three recovered.

In three cases, including the present one, the continuous bath has been used to prevent absorption and for better drainage, and all of these have recovered. While the bath treatment of wounds is itself an old one, and has long been known and employed, both in this country and abroad, its application in such injuries as the present one seems to have been gradual, and its great value should be insisted upon.

In 1878 Bartels speaks of "giving baths" to a case in which there was extensive supuration, and the patient got well; but he does not go into details as to the time the patient remained in the baths. In 1891 Rose, after doing a suprapubic operation for rupture, found that ordinary dressings were not sufficient, and says that "therefore the patient was every day put in a continuous bath for several hours without any dressing." This was continued for twenty days, and then the bath was used only every second or third day. The second case in which it was employed was in 1896, by Wiesinger. Here on the seventeenth day an abscess was opened over the seat of fracture, and the patient put in a continuous bath. The abscess was healed on the forty-second day.

It would seem, then, that whether there be merely incisions for extravasation or whether suprapubic cystotomy or perineal section be performed, the best results can be secured by placing the patient in a continuous bath.

While at first patients may object to the bath, probably more from the thought of it than from actual discomfort, they soon grow accustomed to it, and, as has been said, the present patient when removed from the tub cried to be returned.

Dr. Bloodgood has already reported a case of ruptured urethra in which the bath was used with excellent result. It has been used by Schede in cases of extravasation of urine, and last year Puzey, in London, reported two cases of ruptured urethra, which recovered under the bath treatment. Thus it would seem to be especially adapted to this class of injuries, where efficient drainage is so important and so difficult.

The author has collected ninety cases of extraperitoneal rupture of the bladder; eighty-four occurred in males and nearly fifty per cent. between the ages of twenty and forty. As to the causes of the injury, twenty-three were due to crushing by weight falling on the body; twenty-five by being run over by a wagon; twenty-two from falling from a height. Of the total number of cases seventy-

five died—*i.e.*, 83.3 per cent. Fifty-three of the fatal cases died in the first week—twenty-nine on the first day. Eleven cases were operated on within twenty-four hours; four recovered. Of seven cases operated on between two and five days none recovered. Of seven cases operated on within two weeks five recovered. Injuries complicated by multiple fracture in forty-two cases. The mortality of the unoperated cases was 76.2 per cent.; that of the operative cases 64.9 per cent.

#### DISINFECTION OF THE HANDS.

MENGE (*Münchener Medicinische Wochenschrift*, No. 4, 1898), while contesting the claim made by Reinicke, Ahlfeld and Vahle that the skin of the hands can be thoroughly disinfected by mechanical and chemical means, especially by means of washing with alcohol, recognizes the fact that this medium has distinct bactericidal powers, especially in regard to those vegetative bacterial forms which have lowered resistance, and that it infiltrates all the superficial layers of the epithelium. Moreover, from its hardening influence, its power of abstracting water, it retains the more resistant forms beneath the epiderm. The especial advantage it possesses is that it does not act upon the living cells of the body. It is worthy of note, however, that if after a thorough brushing with alcohol the hands are subsequently soaked in water or the fluids of the body, the epidermic layers again become softened, desquamate, and may enable spores or other resistant forms of life to escape into the wound. For this reason the use of gloves is particularly advisable. Those employed by Mikulicz, Zweifel and others are of stockinette and extremely thin. They can be readily sterilized by heat and should be worn by the assistants who handle instruments, handle dressings, thread needles, and perform other work accessory to the operation. They are also satisfactory when applied by the surgeon himself, provided he operates by the dry method. If, however, he employs lotions, or if the operation is such that the gloves are necessarily soaked with the fluids of the body, the skin of the hands becomes wet, the shedding of epithelium takes place, and infection may readily pass through the thin porous substance of which the gloves are made. The objection made against gloves that they lessen tactile sensibility, though tenable, is not prohibitive, since by use the surgeon soon becomes accustomed

to them and since he can discard them at any moment if it should be necessary, as before putting them on his hands should be disinfected exactly as if he were not to wear them.

Fritsch has raised the objection that by the rough surface the gloves more or less injure the living cells, an objection which has also been raised to sponging. This can be obviated by the use of rubber gloves, the main objection to which lies in the fact that they are extremely hot and are readily torn or cut in tying down ligatures, inserting sutures, or operating with a knife.

To provide gloves which will be cheap, easily disinfected, and yet impervious to water, is the object of Wolffler. He states that the requirements of surgical gloves are that they shall be water-proof, smooth, comparatively durable, not hot or irksome to wear, and readily disinfected. To meet these requirements Menge, having thoroughly dried the stockinette gloves, immerses them in a solution made up of 100 parts of xylol and 20 parts soft paraffin, which melts at a temperature of 45°C. This fluid is warm and the gloves are allowed to lie in it for a quarter of an hour. They are then wrung out and dried in a warm oven. Water and the fluid ascites flow from the surface of this glove exactly as from that of a feather. It is not, however, absolutely impervious to liquids. It fits the hand neatly and presents a comparatively smooth surface. It is not easily torn or cut and is comfortable to the hand, since it still remains porous. It can be sterilized by steam under pressure. It is cleansed by using soap and hot water.

Menge states that since alcohol lessens the spaces between the epithelial cells and makes a more compact layer which practically encloses and prevents from escaping germs which may lie in its substance, it would be well for the surgeon not to employ any watery solution after having used the alcohol. To prevent the fluids of the body doing away with the beneficial effect of alcohol, he suggests that after the thorough cleansing the hands should be washed in the paraffin-xylol solution and dried with a sterile towel. The epidermis after this procedure seems almost unaltered, excepting that it is somewhat more shining. Water runs from the surface as it would from oil-cloth, and softening of the epidermis is impossible. Thus the germs which lie in the deeper layers of the skin and are not destroyed by the antiseptic solutions are kept there even though the hands are

soaked in watery media a long time. Of course this does not provide for the bacteria which eventually escape through the openings of the skin glands. This protective coating also serves against the entrance of septic material through the skin of the surgeon's hands. The thin water-proof coating may be removed by rubbing with ether and washing with hot water, alkaline soap, and a brush.

Menge suggests the following method of disinfecting: Thorough mechanical cleansing by means of hot water, alkaline soap, and a brush, careful attention being paid to the nails; after that long-continued softening of the hands in water, then thorough disinfection of the skin by means of a watery or weak alcoholic solution of sublimate, and soaking of the skin in seventy-per-cent. alcohol and drying with a sterile towel, finally pouring a paraffin-xylol solution over the hands and again drying with a sterile towel.

#### TREPHINING THE SKULL.

BRATZ (*Centralblatt für Chirurgie*, No. 3, 1898) calls attention to the fact that the requirements of modern brain surgery demand methods of opening the skull quite different from those commonly employed twenty years ago. The raising of large flaps by the hammer and chisel is open to the objection that a certain amount of concussion of the brain is produced; moreover, in breaking the bridge of bone across there results a certain amount of splintering. The concussion effect can be readily imagined by any one who has had a tooth plugged. A similar jarring of the skull results from the use of the rotary saw. The traction saw devised by Gigli is not open to these objections. This instrument is also strongly recommended by Obalinski on the basis of extensive experience. This method must be recognized as a distinct advance in brain surgery. The author has so used this instrument upon the living and has experimented with it upon the cadaver.

The method is especially to be commended because of the slight amount of bony tissue which is destroyed, the resulting solution in continuity appearing as fine cut. In replacing bone flaps thus formed the fit is exact. Also, the incision through the bone can be made oblique, so that the outer surface of the flap is greater in area than the inner. The operation has the further advantage that the formation of flaps is much more quickly accomplished than by other methods. Obalinski commends the Collin perforator, with

small trephine crown, as the best instrument for making the openings through which the saw is to be passed. This instrument is somewhat complicated in construction and difficult to hold in place. The author has constructed an instrument very much on the principle of a brace and bit employed by carpenters, which he strongly commends. In forming the flaps Obalinski directs that a tongue-formed incision should be made in the soft parts, the periosteum should be raised somewhat, and in the line of the incision—*i.e.*, the line of the bone flap—five to seven small openings should be bored through the bone. Two more openings should be drilled through the base of the flap. With a fine elevator the dura is separated from the bridges of bone lying between the openings by means of a curved probe or a bent cannula.

The Gigli wire is passed beneath the bridge to be divided. By pulling this wire to and fro the bone is separated without the use of force and without the faintest jar of the brain. The fine openings through which the saw is to be passed should be not less than one inch nor more than two inches apart; the cannula and the probe or grooved sound, which is used to guide the Gigli wire, should receive various curves in accordance with the distance to be traversed. To protect the dura, which is likely to be cut in the first movements of the saw, the author uses a wire loop passed from one opening to the other. The opening he makes with a bone drill the size of 28 F. catheter. He runs this rapidly down until the point begins to penetrate through the internal plate; the rest of the clearing is done by a species of rongeur. The saw is drawn through by means of a thread attached to the end of the probe.

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*THE CURE OF VESICO-VAGINAL FISTULA  
BY THE FREE DISSECTION OF THE  
BLADDER FROM ITS VAGINAL  
ATTACHMENTS AND CLOSURE  
WITH THE BURIED  
CONTINUOUS TENDON  
SUTURE.*

MARCY (*Journal of the American Medical Association*, Nov. 20, 1897) contributes an interesting paper on this topic. In 1887 the author's attention was called to the ease with which the bladder-wall will reunite after injury, under the most adverse circumstances, when the portion involved is free within the peritoneal cavity. The case upon which he operated at this time was that of a child

eighteen months old, where an abscess in the vicinity of the appendix had resulted in a vesico-intestinal fistulous opening in the appendiceal region.

Laparotomy disclosed two fistulæ of the small intestine, complicated with an opening into the bladder to the right of the fundus. The intestines were freed from adhesions and drawn out of the wound. The refreshed edges of the openings were closed by double lines of fine continuous tendon sutures, which in turn were intrafolded by a second layer of continuous tendon Lembert sutures. After the intestine had been returned, the bladder-wall was freed from its adhesions, and the opening into it refreshed and sutured in double lines of continuous tendon sutures, in precisely the same manner as he had closed the intestinal wounds.

The child made an easy and perfect recovery, with primary union of the openings, and is to-day a strong, vigorous girl. The age of the child rendered drainage of the bladder unsuccessful, but from the first the function of the organ seemed little impaired.

The case was instructive in many ways. Perhaps the most important lesson was the primary restoration of the bladder-wall without the supposed necessary physiologic rest of the organ. The method of applying the first row of sutures in the approximation of the freshened edges, held in even support by means of the continuous sutures, inverted the mucous membrane.

The insertion of the suture in both intestinal and bladder-walls is done as follows: The needle is a fine one, curved upon the flat, with eye near the point, and set in a firm handle, made to penetrate the coats of the bladder or the intestine also, but not through the mucous membrane. It emerges about one quarter of an inch from the line of the opening, and is introduced upon the opposite side at a like distance. The needle is then unthreaded, rethreaded with the opposite end of the suture, and withdrawn. This makes the needle a suture carrier like a shuttle, and holds in even coaptation the included structures in a double loop from side to side (shoemaker's stitch). One stitch follows another in an even continuous seam, until the opening is completely closed. By this side-to-side coaptation, the parts enclosed are held in juxtaposition the breadth of the enclosing loop, while the interrupted suture holds only the width of the suture material. The submucous penetration of the needle buries the suture in healthy vitalized structures, and the

pair of forceps was applied to the same artery about a quarter of an inch farther from the spleen; the tissues between these forceps were then divided with scissors and two more forceps applied, as before, to the next vessel. In this way the gastro-splenic omentum was divided without loss of blood and without undue strain on the pedicle up to the level of the proposed division of the spleen (several arterial branches were left to supply the upper end, which was to be retained). The forceps on the spleen side of the divided gastro-splenic omentum were then laid along the inner surface of the lower end of the spleen, and an assistant raised this end with the forceps so that both surfaces of the spleen were well in view. At the level where it was decided to divide the organ the blood-flow through it was arrested by a continuous ligature used in the following way: A long needle threaded with fairly coarse silk twist one and a half feet long was inserted on the inner or "under" surface about half an inch from the edge or border and passed through the thickness of the spleen, emerging on the outer or "upper" surface about the same distance from the edge; the ligature was drawn through until the ends were equal; the free end was then brought up round the border of the spleen and a "double turn" made with the two ends and drawn as tightly as possible, this "turn" being kept through the spleen on the occluded side of the organ as close to the line of ligature as possible and an eighth of an inch to the "edge or border side" of the turn. This was done in order that the next loop should include the spleen where the needle had previously passed through, so that any oozing along this track should be stopped when the loop was drawn tight. The needle was then repassed through the spleen from the under to the upper surface half an inch further on, and a double turn again taken and drawn tight. Continuing in this way the breadth of the spleen was traversed. A reef-knot was then tied and the ends were cut short. The needle may be passed from the upper to the under surface and the turns made on the under surface, but the way described is the most convenient. The occluded end of the spleen was then cut through close to the line of ligature. Separate ligatures were tied round each portion of the gastro-splenic omentum included in the forceps, any tension on the pedicle being relieved as these were tightened. The peritoneum and the three muscular coats were severally united with contin-

uous sutures, the skin incision not being closed. The whole operation was completed in from fifteen to twenty minutes.

The points in the operation which the writer emphasizes are: (1) Its great facility, especially when the double turn is made by twisting the needle round the free end and so getting this double turn on the needle before drawing tight. (2) The oozing which takes place during the passage of the needle is at once checked by the coarse silk, and stopped altogether when the loop is drawn tight. (3) The section of the spleen was absolutely bloodless, except in one case, where a middle loop had not been tied tightly enough; here bright arterial blood oozed away gently, but a similar ligature at that point, tied tightly, at once stopped the bleeding, which did not exceed one drachm. (4) In no case did the ligature cut through the spleen, a little of the pulp only being expressed as the loops were tightened. In the large majority of Jordan's cases coarse silk was used for the continuous ligature, but in two or three cases stout carbolized catgut was employed. (5) The very low mortality.

In cases of rupture of the spleen which are seen in time for surgical interference, this continuous ligature may be employed to arrest the hemorrhage, but the procedure to be adopted would depend upon the extent and position of the rupture. If the injury be of small extent, surrounding the bleeding surfaces with the continuous ligature may be the best treatment; if of larger extent, it would probably save time and be better to excise the damaged portion in the way described. This ligature will also be found to be of service in hepatectomy and in small ruptures of the liver.

In the experimental investigations carried out, nineteen dogs had the lower half of the spleen excised without a death; three dogs had the upper half removed with one death. None of the dogs in which the lower half was excised appeared to suffer the slightest inconvenience or shock after the operation; they at once ran about unfettered and ate voraciously anything they were given. The three dogs which had the upper half excised suffered greatly and one died from shock. It is the removal of the upper half of the spleen which is in the author's opinion so full of danger, so prolific of shock, and often hemorrhage from some small vessel which has either been overlooked or else has retracted before the ligatures were tied. The removal



of the upper half is more difficult than that of the lower half; many more vessels need ligaturing, including, in some cases, a branch from the phrenic previously mentioned, and which may easily be overlooked with fatal results. This artery was present in two of the three excisions of the upper half and in three of the six total excisions. In man it is also occasionally present. Again, in removal of the upper half greater tension has to be applied to the pedicle, which is a distinct cause of shock. Whether the whole spleen or only its upper half be excised does not affect the present argument. In the six cases of total extirpation before referred to, all the dogs suffered greatly from shock, and there were three deaths, the one already mentioned from marasmus and two from shock. If to these six be added the three in which the upper half was excised with one death, we have nine cases and three deaths from shock, a mortality of 33.3 per cent., the survivors also suffering greatly as compared with the nineteen cases of excision of the lower half with no shock or death. May not this great difference be explained by a consideration of the nerve-supply of the spleen and of the relative damage done to the sympathetic nervous system in each case? for on these sympathetic nerves depend the normal tone of all the abdominal vessels and viscera containing any muscular tissue, and all changes in the caliber of these vessels—paralysis or inhibition of their vaso-constrictor fibers causing an extreme fall of blood-pressure, the animal practically bleeding to death into his abdominal vessels—and sudden death has resulted from a slight blow in the epigastric region or from a draught of iced water interfering with the functions of these nerves. It may be well to consider the blood-supply of the spleen first, as the arteries are surrounded or accompanied by the nerves.

The splenic artery, by its pancreatic branches, supplies the body and tail of the pancreas; the left gastro-epiploic running along the greater curvature supplies both surfaces of the stomach and sends branches to the omentum on the left side, some of which may run on to supply the spleen; other branches to the stomach, the vasa brevia, four to eight in number, are given off towards the termination of the splenic artery, some of these arising directly from the trunk and some from the upper two or three of the terminal or splenic branches. The artery then divides some little distance from the spleen into a varying number, from

five to ten, terminal or splenic branches, which enter at the hilus and ramify in the body of the spleen; some of the upper of these give off short gastric branches. In addition to the above there is often the branch from the phrenic running to and supplying the spleen.

The nerves which accompany these arteries are derived from the solar plexus. This, the largest sympathetic plexus in the body, is built up by the semilunar ganglia, nerves from the lumbar portion of the gangliated cord of the sympathetic, the great splanchnics, and the vagi. Through its secondary plexus it supplies the diaphragm (in part) and all the viscera and blood-vessels of the abdomen. Of these secondary plexuses the celiac chiefly concerns the present argument. This plexus is of large size, derived from the forepart of the solar plexus, is joined by the two small splanchnics, and on the left side is augmented by large direct branches from the right vagus. It then furnishes the coronary, hepatic, and splenic plexuses; the latter, surrounding the splenic artery, is again joined by direct branches from the left semilunar ganglion and the right vagus. It supplies the pancreas and stomach through its pancreatic and left gastro-epiploic plexuses, some of the latter running on to the spleen; it again supplies the stomach by branches accompanying the arterial vasa brevia, and then running with the terminal branches of the artery ends in the spleen. In addition to these nerves there are branches from the diaphragmatic plexus accompanying the branch from the phrenic artery when this is present. During an operation it is impossible, of course, to separate these nerves from the arteries, so that a ligature necessarily includes both. A comparison of the operations may be thus stated:

(a) Removal of the whole spleen necessitates the ligaturing of: (1) The splenic branches or, what is the same thing in effect, the splenic artery and nerves before they divide into their terminal branches. (2) The vasa brevia arising from the terminal or splenic branches; this must be done even if the trunk of the splenic artery itself be divided, or else, with the free anastomoses that exist on the stomach, there will be hemorrhage backwards along these branches; neglect to ligature these arteries is probably the cause of some of the deaths from hemorrhage after the extirpation of the organ. (3) The branches from the left gastro-epiploic and phrenic when present. If these

have been divided close to the spleen, as many as from fifteen to twenty small vessels and their accompanying nerves may be included in the different ligatures on the pedicle. If the splenic artery itself be divided, this number would be reduced by the five to ten terminal branches, but the effect on the nervous system would be the same, the "trunk" of the nerve being involved in place of its branches.

(b) Removal of the upper half necessitates the ligaturing of the same arteries except the lower two or three terminal branches, as many as from twelve to eighteen vessels and nerves being included in the ligatures on the pedicle.

(c) Removal of the lower half can be effected by ligaturing the lower two or three terminal branches only. In the two latter operations there is in addition the continuous ligature across the spleen.

From this it will be seen that excision of either the whole or the upper half of the spleen involves great damage to the splenic plexus with its intimate (threefold) connection with the solar plexus and right vagus; entails direct interference with part of the nerve-supply of the stomach and omentum, and severe indirect interference with the vagi and all the sympathetic nerve-supply of the abdomen; the diaphragmatic plexus is often involved and considerable tension has to be applied to the pedicle, and therefore on the celiac and solar plexus and the vagi, thus augmenting the interference with these nerves. The excision of the lower half entails but slight damage to the splenic plexus, and therefore but slight indirect interference with the solar plexus and vagi; the nerve-supply to the stomach, the omentum, and the diaphragmatic plexus is never involved and but slight tension has to be applied to the pedicle. As shock is due to severe inhibition and exhaustion of nerve function, and the grosser the lesion the greater is the shock that results, this great difference in the amount of interference with the nervous system in these operations is the explanation of the great difference in the amount of shock following them; and in the excision of the whole spleen or of the upper half the resultant shock is due to inhibition and exhaustion of the vaso-constrictor fibers of the abdominal sympathetic, and is probably intensified by great interference with the proper performance of the functions of the heart, lungs, stomach, etc., reflexly by means of the vagi. These considerations would induce

the writer to advise in suitable cases in the human being—*e.g.*, abscess, tumor, or cystic disease confined to the lower half, or in hypertrophy which resists medicinal treatment—the excision of the lower half in preference to that of the whole spleen, as the same object would be attained (the removal of the disease or the enlargement), whilst a considerable portion of the spleen would be left to carry on its function; and further, there would be as a reasonable inference a considerable reduction in the death-rate.

#### TREATMENT OF ACROMIO-CLAVICULAR DISLOCATION.

RHOADS (*Annals of Surgery*, January, 1898) calls attention to the fact that dislocation of the acromio-clavicular articulation is usually described as a dislocation of the acromial end of the clavicle, but following the usual nomenclature of dislocations, it is really a displacement of the acromion process of the scapula, the distal bone being the one usually spoken of as the bone dislocated.

In the great majority of dislocations of this joint, the acromion process is displaced downward and inward beneath the clavicle, the outer end of the latter bone riding on the top of the acromion, and the instances are very few where dislocation of the acromion takes place upward with the clavicle engaged beneath the process. This fact is readily explained when one studies the structure of the joint and the character of the injury usually received. The articular ends of the bones are simply two small plane surfaces that are held in apposition by a capsular ligament which completely surrounds the articular margins, but which is so lax in all positions of the joint that the acromion is not tightly braced to the clavicle. This provision of laxity of the capsular ligament permits of a fair range of motion of the scapula upon the clavicle as the former glides upon the thorax, not only in the forward and backward and upward and downward movements, but also in a rotary direction which is called for in the complex movements of the upper extremity. As the joint is superficially placed, some protection is given to it by the aponeurosis of the trapezius and deltoid muscles, the fibers commingling with those of the upper surface of the ligament, while beneath the clavicle is firmly bound down to the coracoid process by the short conoid and trapezoid ligaments, which have, however, no relation to the joint proper.

In all motions in which the shoulder is engaged, the scapula moves upon the outer end of the clavicle, the latter moving in unison upon the sternum, the function of the acromio-clavicular joint being principally to preserve the obliquely forward direction of the glenoid cavity—that is, if there was no such joint, when the scapula slid forward on the thorax the glenoid cavity and shoulder-joint would point inward, and when the scapula slid backward the shoulder-joint would move outward. The joint, therefore, governs the various movements of the scapula, and keeps the glenoid cavity at all times in a forward position. But in accomplishing this preservation of uniformity of position of the shoulder there is but a small—edge to edge, so to speak—articular function of each bone on which the function solely depends, and when certain forms of injury are brought to bear upon the joint—injuries to which the articulation is always exposed from its superficial relations and its position in the body—a disturbance of these meager joint relations, or dislocation, is easily brought about.

The injury that may produce a luxation of this articular union is a blow of sufficient force on the back of the shoulder, as for example, a heavy weight falling from above and striking the shoulder when the body is bent forward, or the participation in an accident in which the body is hurled forcibly, striking the back of the shoulder against some solid object. If the blow lands on the front of the shoulder, a fractured clavicle usually results, whereas if the blow is struck posteriorly, over the acromion or spine of the scapula, the dislocation under consideration is what generally takes place. A blow over this particular area is, however, somewhat infrequent, which accounts for the fact that in the vast majority of cases the blows which the shoulder sustains generally result in a fracture of the collar-bone. The injury is, however, of sufficient frequency to make it one of the surgical pathological phenomena for which the practitioner must be constantly on the lookout.

The recognition of the luxation is not a matter of serious study, and yet it presents, on first sight, a deformity so akin to that of a dislocation of the humerus forward that an unpractised eye may have some difficulty in determining exactly the precise lesion. The rotundity of the shoulder will be destroyed, and the projection of the overriding clavicle may be mistaken for the apparent projection of the acromion in shoulder-joint dislocation.

When, however, it is remembered that the shoulder-joint is depressed but that its motion is not seriously curtailed—*i.e.*, it is not rigid; that the shoulder-joint is carried slightly forward and inward; that the hand of the injured side may easily be carried to the shoulder of the sound side when the elbow is on the chest; that by following the line of the clavicle the normal relations of this bone with the acromion are disturbed, the clavicle being on top; that there is no marked fossa above the head of the humerus; and that the projection of the clavicle is fully one inch within the line of the humerus—one cannot fail to recognize the actual condition.

The treatment of the luxation will necessarily consist in reduction and retaining the limited articular surfaces in position until union of the torn capsular ligament is established. The former is usually easy, the latter most difficult. Reduction can be effected by pushing upward and outward on the arm, which raises the glenoid cavity and scapula, and by manipulation pressing down the overriding end of the clavicle into its normal position and relation with the acromion. This may be done with or without anesthesia, according to the pain-resisting powers of the patient.

The retention of the bones in position now becomes a matter of some difficulty. Desault's dressing is usually recommended, but it proves inadequate for the purpose, the deformity being resumed after the lapse of a few hours, when bandages have stretched and muscles are relaxed. Stimson's adhesive plaster dressing has the disadvantage of causing erosion of the skin in most patients before ligamentous union takes place, which erosion at least is a source of great annoyance, and the test of the efficiency of the method as a curative agent is rendered rather dubious by the information which accompanies the description: "Recurrence can be readily detected through the plaster by the finger or the eye." In fact, some text-books even go so far as to say the retention of the bone in place after reduction presents so many difficulties that it is not worth while to attempt it. To this, however, we would not readily acquiesce. A method of treatment which has answered admirably in the writer's hands seems to meet all the requirements for obtaining a satisfactory result, and the application may be set forth in the following case:

H. H., aged forty-five, of strong muscular development. While the patient was driving in a carriage the horse became unmanageable

and ran away, upsetting the vehicle and hurling its occupant out into the road. He struck the earth forcibly with the upper and back part of his right shoulder, and when found was suffering from a marked deformity of the shoulder, bruises at different parts of the body, severe pain, and shock. A temporary dressing was applied to the shoulder, and the patient was sent to the writer's care on the following day. On examination, there was found considerable swelling, but not sufficient to occlude a marked prominence of the outer end of the clavicle; the acromion could not be felt, and the shoulder was depressed and approximated to the middle line of the body. There was also an apparent lengthening of the right arm.

The patient suffered such intense pain that the author decided to give him an anesthetic to effect the reduction, and to determine at the same time if there was any fracture associated with the luxation. He called to his assistance Dr. J. C. Brick, and while he anesthetized the patient the reduction was effected by the aid and advice of Dr. J. Chalmers Da Costa, no other lesion being found. A pad was placed in the axilla, and a Desault bandage applied. The following day it was found that the deformity had reappeared, and on being reduced by manipulation, the same dressing was reapplied more tightly. This, too, failed to keep the bones in position, and the patient complained of the pain from the tight dressing. Other dressings were then applied according to prescribed methods, and each day the deformity was found to persist. At the end of a week it was suggested that a strap fastened over the shoulder and drawn as tightly as the patient could stand might prove capable of holding the bones in place, and after again reducing the dislocation and holding the bones in position the writer applied such a dressing.

A wedge-shaped pad of absorbent cotton rolled in a towel was placed under the arm, the apex of the pad being pressed firmly into the axilla. A folded towel of heavy texture was placed across the shoulder so as to make it possible to exert pressure over a broad area at the site of injury, and a strap two inches wide (an ordinary trunk-strap was used in this instance) was thrown across the shoulder and under the elbow, and tightened. A pad of absorbent cotton prevented too great pressure on the elbow where the strap crossed. The strap was drawn as tightly over the shoulder as the patient could well

bear it, the point where pressure was exerted being internal to the joint—*i.e.*, between the articulation and the root of the neck—so as to control both the scapula and the clavicle, and the trapezius muscle, without causing the pain of pressure directly over the site of injury. A single retaining bandage passed under the opposite axilla prevented the strap from slipping off the shoulder. The placing of the wedge-shaped pad under the arm with the broad base downward made it possible to exert pressure on the line which would do the most good—upward, outward, and backward—raising the glenoid cavity and with it the scapula, while the clavicle was pushed downward by the same force and thus prevented from again riding up over the acromion. A roller bandage around the chest anchored the arm and elbow to the side, the buckle of the strap not being covered in, so that the strap could be tightened, if necessary, without disturbing the rest of the dressing.

The skin was prevented from being irritated by strips of cotton properly placed. As the patient became accustomed to the pressure, and the shoulder-pad felt somewhat loose on the day following the application, the strap was drawn several holes tighter, the bones being found, however, to have remained in good position during the intervening twenty-four hours. This dressing was kept *in situ* for a week, the parts being examined daily to see that the bones had not slipped. At the end of a week a hand was inserted under the shoulder-pad and the bones firmly held, the arm being held in a fixed position by an assistant, while the entire dressing was removed and the skin surface bathed. The dressing was reapplied weekly after this for two weeks longer, at the end of which time it was discarded altogether, and a spica of the shoulder substituted for still another week. All dressings were then removed. Some pain was experienced on the side of the neck after the original dressing was discarded, which was probably due to some injury to the nerves constituting the cervical plexus at the time of the accident. This disappeared on massaging the parts daily for several weeks, and the patient is now in excellent condition, having full use of his arm without any pain or deformity in the shoulder. The good result obtained in this case, and the simplicity of the application, would tend to recommend the method as a suitable one in the treatment of this refractory lesion.

## Reviews.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. A Digest Collated and Arranged with Critical Editorial Comments by a Large Number of Collaborateurs under the General Editorial Control of George M. Gould, M.D. Illustrated.  
Philadelphia: W. B. Saunders, 1898.

For all practical purposes this Year-book is the most complete and exhaustive single volume dealing with the advances of Medicine and Surgery which is published in any language. There are, it is true, other year-books, particularly in Germany and France, but none of them are as presentable in appearance nor as exhaustive in scope as is the one before us. Further than this, none of them reflect, so far as we are aware, the personal views of the collaborators who assist the editor, and this expression of personal opinion adds very materially to the interest of the book. As a means of attracting attention to the main topics discussed on each page, the method has been carried out of printing important words in large and heavy-faced type, so that in glancing over the page one's eye immediately lights upon the reference or fact which he seeks. This we believe is a useful method, but it requires very careful editing on the part of those who are reading the pages going through the press, else unimportant words receive undue emphasis. While care may have been exercised in this respect in this volume, in a few instances it is lacking, as for example on page 924, where the subject under discussion and the physiological action of the drug are both in the same size type. Such mistakes are, however, not common. Again, we have found in one or two instances in the index that typographical or other errors have been made, with the result that the topic mentioned is not found upon the page indicated. We also notice that proper names are very frequently abbreviated. As this abbreviation saves practically no space and mars the appearance of the book, it seems to us a mistake to print Jas. for James or Geo. for George. We have mentioned these two minor faults because they are practically the only ones which can be found in the very handsome volume of more than one thousand pages.

A number of changes have taken place in the staff of collaborators, but as a rule those who have taken the place of older friends are equally well known as authorities by the medical profession. We are glad to notice that the pages of the THERAPEUTIC GAZETTE have contained so much valuable material

that it, with the *British Medical Journal*, *The Lancet* and other prominent journals in this country and abroad are frequently quoted.

The book can be cordially recommended to any one who wishes a summary of medicine in all its branches for the past year or eighteen months, and we once more extend our congratulations to the editor, Dr. Gould, on the appearance of another evidence of his extraordinary literary activity.

SEXUAL NEURASTHENIA: ITS HYGIENE, CAUSES, SYMPTOMS, AND TREATMENT. By George M. Beard, M.D. Edited with Notes and Additions by A. D. Rockwell, A.M., M.D.

New York: E. B. Treat & Company, 1898.

This, the fifth edition of a very well known book, comes to us after a shorter interval than has been the case with previous editions. Many of the profession are already familiar with it. It deals with the nature and varieties of neurasthenia, then with the evolution and relation of the sexual sense, the relation of neurasthenia to other diseases, sexual hygiene, diagnosis and prognosis, the treatment of sexual neurasthenia, and diet for the nervous, and finally, a chapter upon sexual erythism. It is true, as pointed out by the editor, Dr. Rockwell, there are a large number of cases of sexual neurasthenia with or without complications continually presenting themselves to the physician for treatment. It is also true, as he points out, that no one has succeeded better than Dr. Beard in delineating the symptoms or describing the diagnosis and treatment for this class of patients. The book is printed in good large type and is as worthy as ever of professional confidence.

DISEASES AND INJURIES OF THE CONJUNCTIVA, ESPECIALLY THE SO-CALLED GRANULATED LIDS. By John H. Thompson, M.D., Kansas City. First Edition, 1897.

The author prefaces this little book of 200 pages with the statement that "Its purpose is to assist practitioners and students of medicine to recognize and treat the diseases and injuries of the conjunctiva. It is not intended that it shall take the place of any of the excellent text-books. . . . for it is simply a collection of short essays." The intention of the author is a good one. All books well and simply written on special subjects are interesting to students and practitioners, but we regret to say that his intention has not been, in all cases, accomplished. The style he has adopted is so easy and familiar and almost colloquial that the meaning is not always clear. The contents are

too specific for the student and general practitioner, and not sufficiently concise and elaborate for the specialist. A more practical and comprehensive discussion of diseases of the conjunctiva will be found in any of the standard text-books. The phraseology is in discord with the rules of the construction of sentences of any known language. Thus, on page 43: "The patients complain of the light, and some of them of an intolerable itching of the lids, it being almost impossible to avoid scratching them." One of the most commendable chapters is that on injury to the conjunctiva, in which minute directions are given for the management of the trifling, yet painful, traumatisms that most authors deem too insignificant to more than mention. The proof-reading has been careless, and here and there serious typographical errors have crept in. For example, page 34, he says: "A solution of 5 grains to the ounce of distilled water may be applied to the inverted lids." The illustrations are so imperfectly executed that they do not elucidate the text. The book is neatly bound, but in other respects the publisher's work might have been more creditable.

H. F. H.

**TWENTIETH CENTURY PRACTICE.** An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In Twenty Volumes. Volume XIII: Infectious Diseases. New York: William Wood & Company, 1898.

This thirteenth volume of the Twentieth Century of Practice, somewhat smaller than some of its predecessors, is devoted almost entirely to subjects which are not of particular interest to the general practitioner, and contains articles upon Ptomaines, Toxines, and Leucomaines, others upon Infection and Immunity, Water-borne Diseases, the Duration of Incubation and Infectiousness of Acute Specific Diseases, Smallpox, Vaccinia, and Mumps.

As will be seen, some of these chapters are not very closely related.

The article by Dr. Vaughan, on Ptomaines and Toxines, which we have mentioned, is very exhaustive and occupies the first 131 pages of the book. The article upon Infection and Immunity, by Dr. Harold C. Ernst, of Boston, extends from page 131 to 279, while that upon Water-borne Diseases, by Mr. Ernest Hart and Solomon C. Smith, is about 80 pages in length. Dr. Dawson Williams writes upon the Duration of the Incubation and Infectiousness of Acute Specific Diseases, a comparatively brief article, and Dr. Moore, of Dublin, contributes that upon

Smallpox; Brouardel, of Paris, writes upon Vaccinia, and Comby, of the same city, upon Mumps.

We have the same complaint to make about the index of this volume as we had about previous volumes. It is not as complete and thorough as the character of the work deserves.

The fact that this volume is not as interesting to the practitioner as have been some of its predecessors does not militate against the value of the System in general, which is, as it is intended to be, a monumental piece of work, representing the state of Medicine in the latter part of the nineteenth century.

**THE YEAR-BOOK OF TREATMENT FOR 1898.** A Critical Review for Practitioners and Students of Medicine and Surgery.

Philadelphia and New York: Lea Brothers & Co., 1898.

This well known book is compiled by a large number of English physicians and contains much of the useful information which has been accumulated in regard to the action of drugs during the latter part of the year 1896 and most of 1897. It covers the treatment of all affections, both surgical and otherwise, and is completed and indexed by authors and by subjects, which increases its value.

The work has been well done by those who have collected the information which it contains. In a number of instances their comments upon the quotations which they make are of interest and value.

The price of the book is one which places it within the reach of every practitioner, and to those who are unfortunate enough not to be subscribers to the THERAPEUTIC GAZETTE this book will convey to them information which, otherwise, they have missed in current literature.

**THE THERAPEUTICS OF INFANCY AND CHILDHOOD.** By A. Jacobi, M.D. Second Edition.

Philadelphia: The J. B. Lippincott Company, 1898.

Dr. Jacobi has been for so many years one of the leading physicians in the specialty of diseases of children, and one of the leading physicians from every point of view in the profession in the United States, that any contribution from him is certain to obtain the attention which it deserves. That this opinion is based upon fact is shown by the rapid exhaustion of the first edition of his book, which appeared but a little more than two years ago.

To the practitioner of medicine the book possesses an added charm because of the fact

that the personal experience of the writer is reflected on almost every page. Like other books which have authors of Teutonic origin, the text is written in an informal style which makes one feel that he is reading the report of a clinic rather than an essay upon pediatrics. For this reason the book is not satisfactory as a text-book for students. Although it covers less than 650 pages, it deals with diseases of the skin, of the bones and joints, and of the eye and ear in childhood; and this illustrates the fact that no part of the volume can be considered an exhaustive or complete treatise upon the diseases which it considers. As representative of the opinions and practises of a physician of high repute, the book can be cordially recommended as one which will bring its reader closely in touch with his cases.

THE ELEMENTS OF CLINICAL DIAGNOSIS. By Professor Dr. G. Klemperer. First American from the Seventh German Edition. Profusely Illustrated. Authorized Translation by N. E. Brill, A.M., M.D., and Samuel N. Brichner, A.M., M.D.  
New York: Macmillan Company, 1898.

The name of Klemperer is so well known to physicians in Europe and America that anything written by him must attract attention and be worthy of examination. The volume before us is a small octavo of less than 300 pages, in which the elements of Clinical Diagnosis are carefully outlined. The first part of the book is devoted to methods of diagnostic examination, and then we find carefully drawn up but precise directions as to the acute febrile and the acute infectious diseases. Diseases of the nervous system, of the digestive system and of the upper air-passages are then discussed from a diagnostic standpoint. Chapter VI deals with the diagnosis of diseases of the respiratory tract, and Chapter VII with those of the circulatory system. Chapters VIII and IX deal with examination of the urine and diseases of the kidney, Chapter X with disorders of the metabolism, Chapter XI with the diagnosis of diseases of the blood. The twelfth chapter considers animal and vegetable parasites, while Chapter XIII discusses the Roentgen rays as diagnostic aids. Considering the size of the book, this is one of the best diagnostic manuals with which we are acquainted, and should prove as popular among English speaking medical men as it has with our Teutonic brethren; for though we have looked over it with considerable care, we have not found anything that varied from the line of usefulness or accuracy.

HUGH WYNNE, FREE QUAKER. Some Time Brevet-Colonel on the Staff of His Excellency General Washington. By S. Weir Mitchell, M.D., LL.D.  
New York: The Century Co., 1898.

There are few books belonging to fiction which have become more popular during the last year than this novel by Dr. S. Weir Mitchell. This popularity depends first upon the fact that Dr. Mitchell has brought to his authorship the results of careful historical study and has made himself thoroughly in touch with the spirit of the times of which he writes. It is also interesting because one feels in reading it that he is at least to some extent improving his knowledge of the conditions of the United States during, immediately after and just prior to the Revolutionary War. And finally, and most effective of all in the volume has been Dr. Mitchell's ability to make all his characters human and to touch the heart of the reader from time to time with spirited ideas concerning love and war.

This edition of Hugh Wynne is published by the Century Company in two small octavo volumes, well printed upon good paper, and should prove most popular with those members of the medical profession who have not as yet read the book.

Not infrequently medical men wander far afield from the paths of professional literature into those of fiction and poetry, but very few are markedly successful in these wanderings. In this respect, however, Dr. Mitchell is *facile princeps*, and it is a pleasure to find that a member of our guild can at one and the same time be a distinguished physician, an original investigator, and a most successful author of fiction.

ENCYKLOPÄDIA DER THERAPIE. Herausgegeben von Oscar Liebreich unter Mitwirkung von Martin Mendelsohn und Arthur Würzburg. Zweiter Band. II Abtheilung.  
Berlin. August Hirschwald, 1898.

We have already mentioned in various numbers of the THERAPEUTIC GAZETTE during the last three years the earlier parts of this valuable and exhaustive German Encyclopedia. The present volume of 200 pages extends from Glykokoll to Hydronephrose. We note among the contributors of articles to it such well known names as Munk, Mendelsohn, Wolff, Schleich, and Stadelmann.

The object of the Encyclopedia is, as we have stated, to deal not only with things that are directly therapeutic, but with collateral branches in medicine, and much valuable information in regard to common and unusual drugs is contained in the volume.

RUBÁIYAT OF DOC SIFERS. By James Whitcomb Riley. Illustrated by C. M. Relyea. New York: The Century Company, 1897.

This is a small octavo volume of a little over 100 pages, with an illustration to almost every page, which illustrations serve to greatly increase the interest in the text since they are all cleverly executed and represent the ideas given us in the verses placed beside them. The characteristic *patois* in which the verses are written makes the reading, perhaps, a little more difficult than they would be if written in ordinary English, but there is from beginning to end that rhythm or jingle which has made Mr. Riley's poetry so popular in this country. The opening verses in the way of a preface differ in meter and in style from the main poem. This is the first of the preface:

We found him in the far away  
That yet to us seems near,  
We vagrants of but yesterday,  
When idlest mirth was here,  
When lightest song and laziest mirth  
Possessed us through and through,  
And all the dreamy summer earth  
Seemed drugged with morning dew.

THE RETROSPECT OF MEDICINE. A Half-yearly Journal Edited by James Braithwaite, M.D., and Alfred Trevelyan, M.D. Volume XVI, July to December, 1897.

London: Simpkin, Marshall, Hamilton, Kent & Company, 1898.

As is well known to our readers, Braithwaite's Retrospect of Medicine has now been before the profession for the long period of fifty-eight years and is to-day as valuable as ever, for it contains in condensed form the best articles which have appeared during the six months from June to December, 1897. All these articles are picked out because of their particular reference to facts of interest to the general practitioner. The present volume is, we think, even better than its predecessors in the practical character of its contents. The book is published in this country from advance sheets sent to G. P. Putnam & Sons, of New York, and still merits the confidence which has heretofore been reposed in it.

ELEMENTS OF LATIN. For Students of Medicine and Pharmacy. By George D. Crothers, A.M., M.D., and Hiram H. Bice, A.M. \$1.25 net.

Philadelphia: The F. A. Davis Co., Publishers, 1898.

We are told in the preface of this little manual of 242 small octavo pages that it is designed to present within the briefest possible compass those principles of Latin etymology and construction which are essential to the intelligent application of the terminology of pharmacy and medicine. Some

one has said "half the difficulty of anatomy is inherent, the other half is in wordiness." "The trouble with the student is more in the names of things than in the things themselves. He mistakes the one for the other; his head swims, and then he founders in the sea because of his Latin storm." It is with the object of smoothing the billows which threaten the voyage of the medical student, at least in the early days, that this little book has been compiled. It seems to us to fulfil its function admirably, and we trust that it will do much towards increasing the knowledge of medical Latin.

THE CARE AND FEEDING OF CHILDREN. A Catechism for the Use of Mothers and Children's Nurses. By L. Emmett Holt, M.D. New York: D. Appleton, 1897.

As its title indicates, this tiny book of just one hundred pages is a catechism covering the diet of children. It is arranged, as have been some recently published quiz books, in the form of questions and answers, in a manner which reminds one forcibly of the celebrated "Ben Franklin Primer." It contains much valuable information for the persons for whom it is intended, but we do not see that the question and answer form of the text has materially increased its value.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFURD, A.M., M.D. OXON., M.R.C.P. LOND.

During the past week the influenza epidemic has undergone a slight remission in London, and with the return of colder weather it is to be hoped that the improvement may be further sustained. The character has for the most part been of the gastro-intestinal type, with sudden and profuse watery diarrhea, and vomiting. In one or two instances the symptoms have been so severe as to produce a most alarming condition. Such an epidemic has worked havoc in the Warwick County Lunatic Asylum. At first it was thought that the symptoms were due to some poison in the food supplied to the inmates, and this seemed to be confirmed by the fact that the largest daily incidence occurred the day after a ball had been given in the asylum. It was even suggested that some of the patients who were well enough to be employed in the kitchen had put arsenic in the food. However, it was shown beyond all doubt that they had to deal with



a very virulent form of influenza. There was an intensely acute onset with rigors and generalized pains in the limbs, head, and neck; coryza and pain in the eyeballs were mostly present. This was followed by vomiting and diarrhea. The evacuations in some cases tended to be choleraic in character, and slight jaundice was not uncommon. The temperature was usually very high at the commencement of the diarrhea, but fell rapidly, usually below normal. The crisis of the temperature was usually marked by profuse and exhausting perspiration, leaving the patient in a state of extreme collapse. In cases of this kind an intense urticaria not infrequently accompanies the crisis. The infectious character of the epidemic was demonstrated in several cases by direct communication to others outside the asylum, who had not partaken either of food or drink within its walls. Intestinal antisepsis has not been of much service in these cases.

At a meeting of the Hunterian Society, Dr. Hingston Fox read a paper on the Treatment of Constipation. He recognized two main forms of constipation—the one due to peristaltic disorder, the other due to lodgment of feces in or above the rectum. The latter seems in most cases to arise from neglect of the calls for relief, so that the rectum becomes less sensitive and also less automatic in its action; hence the importance of careful discipline in the habit in early childhood. It is quite useless to treat these cases by constant laxatives, although those that act on the lower bowel may be useful for a while. To regain the lost habit of rhythmical defecation Dr. Fox suggested certain practical rules: (1) Absolute regularity in soliciting the bowels twice daily—that is, after breakfast and in the evening, when fatigue relaxes the sphincter. An evening evacuation is certainly a habit to be cultivated by business men, whose early hours make regular and leisurely defecation an impossibility in the morning. (2) Easy posture. Lauder Brunton suggests the use of a footstool, but in this matter of posture each man must needs be a law to himself. (3) Distraction of the attention. (4) In cases of difficulty, postponement of vesical relief until after breakfast, so as to get simultaneous relaxation of both sphincters. (5) Removal of all local sources of irritation. (6) Occasional small enemata. We cannot but dissent from this last measure in those cases in which the rectum is unduly insensitive. Glycerin enemata and glycerin sup-

positories very rapidly remove the last remnant of automatic activity, and in our experience water enemata are only a degree less harmful.

Dr. Dawson read a paper on the Physical Signs of Stomach Disease and Their Relations to Diagnosis and Treatment. Dilatation of the stomach he considers to be almost always present in chronic dyspepsia, and for this reason he advocates drugs that increase the motor power of the stomach, such as *nuxvomica*. For anemic dyspepsia he recommends iron and arsenic from the first, with bismuth. For these cases we ourselves have been in the habit of combining the tartrate of iron with liquor bismuthi et ammonii citratis, and with most satisfactory results. When pain is prominent, the addition of a few grains of bromide of ammonium to each dose usually does all that is needful. In cases of chronic dyspepsia with marked dilatation, in which retention of food in the stomach with marked fermentation is the prominent feature, he uses lavage with electricity and massage, and of drugs, arsenic and alkalies.

At the Society of Anesthetists Mr. Alexander Wilson, of Manchester, opened a discussion on the methods of treatment in emergencies under anesthetics. He grouped the remedial measures under six heads: (1) External applications, such as cold, Corrigan's button to the epigastrium, ammonia vapor to the nostrils, which excites respiration merely in a reflex manner. (2) Reflex excitation and respiration by mechanical means—for example, rhythmic traction on the tongue and dilatation of the sphincter ani. (3) Stimulation of the heart by mechanical and electrical means, including actual puncture. (4) Artificial respiration. (5) Measures counteracting circulatory failure, such as posture and transfusion. (6) Drugs, including amyl nitrite, strychnine, atropine, etc.

With regard to the first two classes it is of course necessary that the nervous tissues should have sufficient vitality to convey stimuli. Mr. Wilson considers artificial respiration the most effectual measure for stimulating a failing circulation. It acts in three ways—by removing the anesthetic vapor, by supplying fresh air, and by promoting blood circulation. Inflation and Sylvester's method of artificial respiration are the most efficient, but faradization of the phrenics may be useful in old subjects with rigid chests. Subcutaneous injection of drugs is open to the

objection that for their absorption some degree of circulatory activity is necessary. Schäfer contended that the respiratory, vasomotor and other centers in the medulla were all affected simultaneously by anesthetics. At a certain stage in the action of chloroform blood-pressure rapidly falls; this goes on *pari passu* with paralysis of the respiratory centers, while the action of the heart itself grows weak, probably in consequence of paralysis of the vasomotor center. The effect on the vasomotor center is the most fatal in cases of chloroform poisoning on account of the absence of efficient and ready means of counteracting it. The failure of respiration is comparatively unimportant, for so long as the circulation is well maintained, the very slightest exchange of air is all that is necessary. Schäfer advocates the employment of atropine before giving chloroform as a means of preventing arterial dilatation, which is the cause of the dangerous fall of blood-pressure. He also speaks encouragingly of nicotine and suprarenal extract for the same purpose; the former may be given by intravascular injection or beneath the skin. Suprarenal extract has a very powerful effect on the heart, increasing the rate and force of its beat; and these two substances together should go a long way towards enabling patients to recover from vasomotor and partial cardiac paralysis. Gottlieb has long maintained that the effect of suprarenal extract was mainly upon the motor ganglia of the heart. He confirmed his belief by observations of the blood-pressure in animals in which paralysis of the vasomotor centers had been produced by chloralization. By simultaneous observation of the renal arteries, he ascertained that the rise of blood-pressure did not correspond to any diminution of caliber of the arteries, so that the main effect must be on the heart. Cardiac vigor is revived even when the chloralization is pushed to a degree at which the movements of the heart are imperceptible and no longer registerable by the manometer.

Dr. Purdon, of Belfast, advocates the employment of lactophosphate of lime in acne and furunculosis. He prescribes it either in combination with iron or with cod-liver oil. For the latter he gives the following formula:

Gum arabic, 3 x;  
Water, f 3 j;  
Syrup of lactophosphate of lime, f 3 iij;  
Cod-liver oil, f 3 iv.  
Essential oil of bitter almonds, ℥ iij.

Rub the gum, water and syrup together until a smooth mucilage is made; then add

the cod-liver oil gradually, with constant stirring, and lastly the essential oil of bitter almonds. Thus made each tablespoonful of the cod-liver oil and syrup of the lactophosphate of lime contains four grains of lactophosphate of lime and fifty per cent. of cod-liver oil.

Dr. Wathen, of Clifton, communicated to the Dermatological Society some unusual local effects from the use of iodoform. He and others had encountered attacks of bulous dermatitis of the hands from handling dry iodoform gauze. In treatment of the condition he had found great relief from the firm application of bandages to the fingers, with boracic ointment and occasionally thick gruel, followed by a visit to Harrogate with the use of Aix douche baths. The line of treatment seems somewhat ponderous for a disorder that presumably should have subsided with removal of the cause.

Sir William Broadbent's pronouncement of the fashionable Nauheim treatment will meet with general approval. He considers that its maximum benefit is derived in cases of dilatation of the heart due to such depressing influences as influenza. It often also gives satisfactory results in cases of functional and neurotic heart disease. In valvular disease it is of course useless when compensation is well maintained, and no symptoms are present; when compensation has completely broken down it is not advisable, as rest in bed and suitable treatment of other kind will be more efficacious. In cases of mitral disease, and more especially mitral stenosis, where a bare balance of compensation is maintained and the stenosis is so far advanced that harm would arise from increasing the contractile power of the right ventricle, it may also be of great service. In aortic disease it is not advisable, owing to the risk of syncopal attacks, though when compensation is breaking down and mitral symptoms are present, it may sometimes yield good results; and the same is true of heart failure from adherent pericardium. As we have pointed out elsewhere, it has always seemed to us that much of the disappointment of the Nauheim system has been due to the modes and methods of its employment. It has been religiously retained in the hands of a few professional promoters as a proprietary remedy to be employed only at their instance, and has thus found disfavor in the eyes of medical men at large. With regard to the artificial substitutes recommended in this country, Sir William Broadbent lays it down

that "this treatment may not yield such good results in England as at Nauheim, as apart from the effects of the natural mineral baths there, and the exercises; the change of air and scene, the quiet uneventful life, the early hours and regular meals, together with freedom from all excitement and worry, will greatly contribute to the success of the other remedies."

Mr. Wallis has some interesting remarks on the causes and treatment of anal pruritus in the *St. Bartholomew's Hospital Journal*. The causes are both constitutional and local, and a small local, given the constitutional predisposition, may lead to a severe pruritus. Errors of diet, especially beer drinking, are the root of many cases, and another frequent cause is uncleanness. In the well-to-do classes some wines will be found to have the effect of setting up this local irritation, and other articles of diet, such as tea and coffee. Strumous people with delicate skins and a good deal of hair about the anus are apt to suffer, and sometimes the disorder will be found to be a purely nervous phenomenon. Among local causes those within the bowel include constipation, hemorrhoids, polypi, fissures, fistulae, threadworms, and simple ulcers. In his out-patient department Mr. Wallis found in more than twenty-five per cent. of the cases a small ulcer on the dorsal aspect of the bowel between the two sphincters, or a little higher. Of causes outside the bowel we have to reckon with eczema, pediculi, and excess of sweat that is not washed away from the part. In treatment the first essential is general and local cleanliness; this with attention to diet and relief of the bowels will often suffice. Bran-baths are beneficial, and Mr. Wallis gives the following directions for their preparation: A large double handful of bran is put in a gauze bag and placed in the bath ten minutes before use. A small amount of pearl ash may be added to the water, which should be as warm as the patient can comfortably bear. The bath should last for twenty minutes, the buttocks being separated as far as possible. After careful drying, the parts should be carefully dusted with a powder containing equal parts of zinc, starch, and boracic acid powder. The buttocks should be well separated by a firm pad of cotton-wool, which should be kept applied closely by means of a T-bandage and should be worn at night-time. It will be well if the overnight bath can be repeated in the morning, and after it a strip of lint, spread with boric ointment, can be worn

during the day and kept in place by a pad and bandage. If a simple ulcer is present, Mr. Wallis recommends stretching the sphincters under an anesthetic, and scraping the ulcer if necessary. Other causes must be dealt with according to the usual methods.

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#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

Since our last letter the "affaire Laporte" has at last been brought to an end by the acquittal on appeal of the accused. Thanks to the efforts of Professor Pinard, and also to the pressure of public opinion, the former judgment was quashed and Laporte's conduct was vindicated. Even the counsel for the prosecution was inclined to admit that a physician could not be prosecuted for lack of success in an operation. Dr. Laporte has received about 15,000 francs, as well as the secretaryship of one of the medical societies. Such a result indicates clearly the state of public opinion in the medical world.

Dr. Lermoyez has published an article in which he speaks at length of acute sinusitis of the face and of the necessity of making a rapid diagnosis. This affection in its chronic form is not readily cured even by specialists, but in its first stages a moderately energetic treatment will suffice to prevent a change leading to a chronic condition. Dr. Lermoyez shows by various statistics established by Gradenigo of Turin and Weichselbaum of Vienna that on an average out of five hospital patients one is afflicted with sinusitis. This frequency is due to two principal causes: dental caries or rhinitis, in which case infection takes place either by projection of the pus into the cavity or by propagation. As for dental caries, it is the first large molar which is most readily attacked; it is, moreover, in contact with the maxillary sinus. Another thing to be remembered is that meningitis may result from neglect to cure a relatively simple affection.

Dr. Lermoyez goes on to say that if acute sinusitis is generally caused by catching cold, chronic sinusitis is caused by the physician's neglect. This is due to the fact that most physicians do not recognize this affection in its primary stages. They wait until certain symptoms, such as heat, pain, redness of the cheek, indicate exteriorization of the affection. A thing to be remembered is that in reality two important symptoms allow one to make a rapid diagnosis: the first is the flow

of pus from one nostril—pus which is fetid, as the patient is able to perceive; the second symptom is facial neuralgia—supra- or infra-orbital, dental or epicranial. These two symptoms when occurring suddenly are generally sufficient. Lastly, nothing is easier than to cure a case of acute sinusitis. The principal object is to favor the evacuation of pus, and this is best done by preventing the closure of the natural orifice. Cocaine might be used, but is applied with difficulty by the ordinary practitioner; menthol can be employed much better. Dr. Lermoyez recommends inhalations of a teaspoonful of the following solution: Alcohol (90-per-cent.) 100 grammes, menthol 4 grammes, in a bowl of hot water; this to be repeated every two or three hours. Wet compresses may also be applied on the cheeks or forehead according to the sinus. Another point to be observed is that the first upper large molar should be removed as soon as possible.

At a meeting of the Medical Society of the Hospitals, Mr. Lucien Roques showed a patient who had suffered for three years from intermittent attacks of hemoglobinuria brought on by cold. Applications of ether or ice were sufficient to produce on the spot itself edema resembling urticaria. This spot was localized to the region on which the ether or ice had been placed, and by its coloration seemed to indicate that there had been transudation or a modification of the serum with hemoglobin in solution. The patient showed no signs of hysteria or dermatographism. Such a case was to be compared to similar ones indicated by Courtois-Suffit, Mackenzie, and Joseph.

At the same meeting Drs. Achard and Weil called attention to the fact that a virtual condition of glycosuria may exist where no loss of sugar is to be detected, but in which by the ingestion of sugar the reaction of sugar may be found. Such a condition should be compared to what is seen in Bright's disease where albuminuria may not exist. There would seem to exist a certain class of patients presenting the general aspect of diabetic patients, such as adiposity, arterial indurations, varicose dilatation of the face, hemorrhoids, pulmonary emphysema, frequent epistaxis, hemicrania, and baldness, who when treated by the ingestion of glucose show sugar in their urine.

The discussion at the Academy of Medicine on the use of blisters has continued for several weeks. Dr. Huchard, well known for his works on heart disease, says that

cystitis and nephritis are caused sometimes by blisters, but that these affections are only important or dangerous in old people with chronic nephritis or arteriosclerosis, and blisters should therefore never be used in such cases. Grandmaison has, moreover, shown how disastrous are the results of the use of blisters in tuberculosis. However, Dr. Hervieux has praised the effects of blisters in puerperal peritonitis, where leeches or wet cupping are really as useful, though they cannot be said to cure the effusion.

The great disadvantage of blisters is that they permit the infection of the skin, the natural covering of which is removed. Pneumonia and pleurisy have been treated in some cases by blisters, and the only result has either been a relapse or an increase in the effusion. As the blister produces only a revulsive action, it is as well to use other means, such as cupping or cold. The modification produced in phagocytosis is not peculiar to the use of blisters, but is apparent when cold baths are employed.

In answer to this, Dr. Panas, the celebrated ophthalmologist, said that blisters and other means of revulsion had not as yet quite disappeared from surgery. For instance, in various forms of arthritis, in the treatment of the inflammation of various viscera, the injection of tincture of iodine or of essence of turpentine was often used; small blisters also were often used in ophthalmology. The author cited a case where a temporal abscess produced a complete recovery of syphilitic iritis treated without result by the specific treatment.

Dr. Cornil, the well known pathologist, described the various lesions brought about by the use of cantharidin, the active principle of blisters. There is a twofold action—one on the blood-vessels, which are distended and allow of the exit of leucocytes, and secondly, a granular condition of the cells in the tubes, followed by their desquamation. These various effects indicate well what can be expected when cantharides are used in old people with weak kidneys.

Dr. Robin again called attention to what he had said about the results of blisters on the absorption of oxygen, to which Dr. Huchard objected that the experiments of Röhrig show that the absorption can be increased by other means. But the experiments of Röhrig are defective, and the absorption of oxygen tends to destroy toxins by burning them.

Dr. Jaboulay, of Lyons, cites a certain

number of cases of exophthalmic goitre which he has treated by section of the sympathetic ganglion of the neck. He proposes in some future case to try only stretching, as he believes that the degeneracy produced by section may go too far.

#### BERLIN LETTER.

BY JAMES J. WALSH, M.D., PH.D.

It was here in Berlin that Senator first called attention to the benefits to be derived from the salicylates in the treatment of rheumatism. The present position of the prominent clinicians here with regard to the salicylates is interesting. Professor Leyden says very simply of the coal-tar derivatives with antipyretic action that all of them have a favorable influence on the disease—*i. e.*, they are analgesic and quieting, and they reduce the fever. As to which one shall be used depends on the idiosyncrasy of the patient. Some patients react promptly to antipyrin, some to phenacetine or acetanilid, while some are relieved more promptly and effectually by the salicylates.

The order given is about that in which the drugs are employed in his clinic, antipyrin being always administered first. Where none of the coal-tar derivatives do good, and such cases occur, recourse is had to what Leyden calls indifferent remedies. Among these he classes the alkalies. This is quite a comedown for the lauded specific remedy of other days, when every hour of illness was considered dangerous until the urine had been rendered alkaline, and heart complications were supposed to be severe just in proportion to the delay of the alkalies.

Professor Gerhardt says of the salicylates that they undoubtedly often give prompt and efficient relief in rheumatism, but salicylic acid is too hard on the stomach, salicylate of sodium too irritating and depressing to the heart. Antipyrin fulfils the symptomatic indications as to pain and fever quite as well as the salicyl compounds, and has not as many or as serious disadvantages. Except where there are cardiac contraindications, the routine practise in Professor Gerhardt's clinic is to give fifty to sixty grains of antipyrin the first day of an acute attack, and seventy-five grains the next. Usually on the evening of the second day the patient is resting quietly without pain or fever.

In Professor Senator's clinic the salicylates, usually the sodium salt, are administered first.

Professor Senator does not claim that it is a specific, though in many cases it has almost a specific action, and he admits that there are certain cases in which other of the coal-tar derivatives give relief when the salicylates have failed.

At most this is claimed to be only symptomatic treatment. The disease itself is left to Nature to take care of. The etiology of the disease all the clinicians admit is a bacterium. Its nature they are not so agreed about. Leyden thinks it is a diplococcus; Senator that it is a degenerate form of staphylococcus; Gerhardt has no special favorite among the forms, but seems convinced of its microbic origin. All of them seem to be agreed that not all the cases of seemingly frank acute rheumatism are due to the same bacterial cause, any more than that all the cases of acute pneumonia are due to the same microbe.

Between pneumonia and rheumatism a number of striking analogies are pointed out over here. Their tendency to occur in damp weather side by side, one being as it were the equivalent of the other in persons of different constitutions; their failure to protect but rather to leave the patient liable to second attacks; their tendency to occur in epidemic form in unhygienic hospital wards or in barracks; the tendency of their bacterial cause to invade other parts, especially serous membranes at a distance from the seat of the original affection, for the diplococcus and the bacillus pneumoniæ have both been found in pure cultures in other organs,—all these similarities make doubly interesting the present identity of views as to therapeutics in their regard.

As said before, the treatment of rheumatism, like that of pneumonia, is merely symptomatic. Local measures play a great part in it, and ice-bags and cold compresses are the favorite applications; the aim being not only to still pain and lower temperature, but to influence the growth of the microbes locally, by making the conditions for growth more unfavorable.

The use of the salicylates locally, as they do not disturb the stomach, and are said not to be so depressing to the heart, while they certainly still the local pain very quickly, is a favorite remedy in a good many clinics over here. Wintergreen oil was at one time used for this purpose, but Professor Pribram, in Prague, has noted that though this is ninety per cent. methyl salicylate, some of the remaining constituents are not indifferent, as

he has got much better results with much less depression, by the use of pure methyl salicylate applied over the affected joints. Enough of the drug is rubbed over the joint so that in twenty-four hours the salicylic reaction may be found in the urine.

For chronic rheumatism Professor Gerhardt employs hot sand baths, an arm or leg being covered with sand at a temperature of 120° to 130° F. It would be practically impossible for patients to stand water this hot, as owing to its high specific heat it parts too rapidly with caloric energy to surrounding objects. In sand these high temperatures are very well borne. The results are strikingly good. Only sodium iodide is employed in connection with them.

Towards the end of last year Professor Neisser, of Breslau (the discoverer of the gonococcus), announced that a new silver compound, protargol, had given him the best results that he had ever obtained in the treatment of gonorrhea. It was an excellent antiseptic with the well known specific antagonism of the silver salts to the gonococcus; it was absolutely unirritating and hence could be used in reasonably strong solutions. Ever since the medical journals have been publishing frequent articles on the subject, nearly all in unstinted praise, and a number of young Americans sojourning in Europe rushed into print with series of cases with wonderful results—"Arbeit statistics" they are called here.

The inevitable reaction is just setting in. Professor von Bergmann, at a clinic the other day, denounced all antiseptic treatment of gonorrhea as illusory, and said he had never found anything better than the old reliable sugar of lead. Dr. Behrend, who has medical charge of the prostitutes of Berlin, and whose experience in gonorrhea is very large, reviewed the contributions of the Breslau school to the therapeutics of gonorrhea at the Berlin Medical Society last week, to the great amusement at least of the older members.

In ten years the whole gamut of the silver salts has been run, each claimed to be a panacea for all the ills caused by the gonococcus. There was nitrate of silver, then argentamin, then alumnol, then for a change ichthyol, then argonin, and now finally protargol. Each of them was heralded from the East as a sure specific, and each, except the last, has fallen into innocuous desuetude. Dr. Behrend has not had the results claimed for protargol, and he has found, notwithstanding its assured blandness, certain un-

pleasant irritative effects. Others at the meeting shared his want of confidence in the new drug; and Finger in Vienna and Lasser here in Berlin both have not had success with it. It is, however, undoubtedly a most unirritating antiseptic and an efficient one. From Paris come some excellent reports of its use in eye cases, and there would seem to be a place for it in the antiseptic treatment of sensitive mucous surfaces in general.

The most promising thing in the treatment of gonorrhea just now would seem to be Quincke's suggestion as to temperature. The gonococcus is extremely sensitive in cultures to even slight variations of temperature. Dogs with a constant temperature of 39° C. cannot be inoculated with gonorrhea, and Finger found that malarial and other patients with a temperature of 40° C. would not take it. Quincke puts a Leiter coil around the penis and brings the temperature up to 40° for twenty-four hours, and has got some very satisfactory results.

In tuberculous joint affections the conservative tendency of German surgeons is very striking. Operative measures are put off until it is perfectly evident that no less radical means are of any avail. Injections of iodoform emulsion ten per-cent. are made, not once or twice, but three, four, and sometimes five, times, in the hope of halting the progress of the disease without recourse to the knife. A popular bit of surgical technique in this matter just now is the taking of a Roentgen photogram of the joint just after the injection of the iodoform. As the salts of iodine, like the salts of the metals, are opaque to the x-rays, a very good idea of the distribution of the iodoform is obtained by this means. As the drug is not soluble in the fluids of the joint and inhibits bacterial growth only by its actual presence on the surface of diseased tissues, it is important that it should be thoroughly distributed over the internal capsular surface and the bony cartilages. As ordinarily injected, however, it needs but a small fringe of diseased tissue to so alter the direction of the injected liquid that most of the emulsionized iodoform will be deposited over but a very limited area. The subsequent passive movements and kneading of the joint will only partially overcome the defect of technique. Time is precious in the therapeutics of such cases; the bacillus is ever being buried more and more beneath inflammatory products, out of the way of antiseptics, so that the Roentgen procedure would seem to be a promising one.

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## Original Communications.

### *THE TREATMENT OF SOME SERIOUS AFFECTIONS: BEING THE ADDRESS IN MEDICINE BEFORE THE MEDICAL SOCIETY OF THE STATE OF OHIO IN 1898.*

By H. A. HARE, M.D.,  
Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia.

When I accepted the courteous invitation of your secretary to deliver the address in Medicine before the Ohio Medical Society it occurred to me that I could not do better than to consider a number of topics of a

medical character rather than one general theme. We are met together to discuss those matters which will prove of benefit to us in the practise of our profession, and our object is to go to our homes with clear and distinct ideas as to the methods we should employ in the diagnosis and treatment of disease.

The first subject of which I desire to speak is the proper treatment of typhoid fever, a subject which seems so hackneyed as to be worthy of instant dismissal; yet who of us with experience can claim that the ideal treatment of this malady is as yet discovered? Yet this ideal should not be far to seek, for the mortality of the disease must remain at a

certain point as long as the disease occurs—that is to say, a certain proportion of cases in which great susceptibility to the disease exists, or who receive a very virulent dose of the infection and who come under our care late in the malady, must die as long as we are all mortal. The death-rate from typhoid fever is to-day less than it has ever been, and this decrease is all over the world chiefly as a result of prophylaxis, for by this means the number of cases has been decreased in a manner almost equal to the decrease in smallpox since the use of vaccination. Thus in Munich the mortality from typhoid fever has decreased from 453 per 100,000 in 1858 to 3.4 per 100,000 in 1896 as a result of improved drainage, and in every city in the world this improvement, made *pari passu* with an improved water-supply, has produced results of almost equal degree. These facts I have still further emphasized in a paper read before the College of Physicians of Philadelphia in March last. The decreased death-rate also indicates a decreased severity of illness in those who recover, and thus we find that to-day typhoid fever is with a few exceptions distinctly on the wane as to severity and mortality. This decreased malignancy is not, however, the only cause of the decrease in death-rate, which has fallen from thirty or twenty-five per cent. to about fifteen per cent. or less in this country. It is due to the fact that the medical profession has learned one dominant fact, namely, that while they can modify the severity of typhoid fever by prophylaxis and by proper treatment, they cannot abort it or cure it. To express it briefly, the physician must guide his patient through the storm of his infection as a captain guides his ship. He can relieve dangerous symptoms, protect to some extent certain parts from fatal damage, place the whole system of his patient in a state best qualified to resist the disease; he can prolong it by bad treatment; but he cannot shorten the storm by any direct means. This fact rests upon two others, namely, that the infectious process runs a given course in each case so far as its length is concerned; and secondly, the physician, unlike the captain of a ship, takes charge of his patient not before the storm but after it has in gradually increasing intensity been developing in his patient for two weeks before it has manifested itself, and often for as long a period before its character is recognized. The pathological changes have been produced, and even if they do not progress further the proc-

ess set up must run its course in the case of the intestine, for example, till the glandular changes are completed in ulceration or recovery. Every plan of treatment which has been tried in a sufficiently large number of cases to be studied statistically emphasizes these facts, and is directed to a modification of the symptoms and a protection of the patient against injury and not to a true cure in the sense of specific medication.

In Germany some forty years ago typhoid fever patients were treated by catharsis, emesis, and venesection. To-day the vast majority are treated by the cold bath, which, whatever objections may be raised to it, at least permits the system to combat disease and eliminate toxins without fighting the treatment in addition. Again, good nursing and the recognition that the conservation of energy is absolutely essential for the saving of life aid non-meddlesome methods.

At present there is another plan of treatment largely employed in the treatment of this disease, namely, that by antiseptics. In my belief both the bath method and the antiseptic plan are but gropings in the dark, each possessing a glimmer of the light of truth in them which prevents us being lost. It is a safe rule of practise to take a middle stand in accepting and carrying out any particularly highly lauded plan of treatment of disease. Particularly should the physician avoid routine plans of treatment, for as long as human beings differ in their characteristics and micro-organisms differ in their virulence, each and every patient must be treated by himself, or in other words the treatment must be varied by the necessities of the individual. For this reason the plunging of every patient in a tub of water at 70° F. because he has typhoid fever is not good therapeutics, and so the use of purgatives or intestinal antiseptics in practically unvarying amounts is unwise. All great underlying principles may be right in theory, but they must be so utilized as to meet the exigencies of life. In other words, the cold bath treatment and the antiseptic treatment do good in principle, but they must be suited to the patient before us.

There is not time in this discourse to show how a large part of the low mortality claimed by the enthusiastic followers of either of these plans is in part due to the careful nursing, feeding and stimulation of their patients. I have recently (THERAPEUTIC GAZETTE for March, 1898) seemed to prove that the bath only decreases the mortality about three per



cent. in itself. The chief fault with the adherents of both plans is that they are so well satisfied each with his method that they will not use the other, and nothing is more disastrous to patient and to the success of the doctor than the confidence of the latter that the plan he is using is the best to be found. It may be as good as he knows of, but his business is to find a better one always, or at least to seek for it.

In regard to the antiseptic treatment so called, it has not found general recognition because the grain of truth that intestinal fermentation and germ development is harmful has been surrounded with such a mass of theory not in accord with facts, and its technique has been so varied and so futile or heroic, that the grain of fact is overwhelmed. Intestinal antisepsis in typhoid fever is a good thing, but it is not the only good thing and often not a necessity. So, too, the bath is not the only thing needed or always a necessity. Beyond the use of antifermentative drugs to combat evidences of intestinal disorder, I confess that I have never resorted to this sole plan of treatment for the reasons given; and so, too, with the cold bath I have been impressed with the fact that the full cold bath is not for every one. As I have said before, every one does not need croton oil for constipation or twenty drops of digitalis for a failing heart. The skill of the physician consists in knowing not only the general remedy but the dose. It seems to me, therefore, that in the use of antiseptics and purgatives we should use judgment and not routine, and that the same rule holds true of baths.

It is our duty to understand the great underlying principles of a plan before we try it or modify it. In the case of the bath we find that its antipyretic powers are now recognized as being its least useful characteristics; that the most able hydrotherapists not only admit but assert that he who expects to throttle the fever by the use of the bath will be mistaken, and that the benefits to be derived lie in the improvement of the circulation, the overcoming of stasis, the production of leucocytosis, the encouragement of oxidation, and the reactive awakening of dormant and intoxicated venous centers. If these are the desiderata, how are they to be attained? Without doubt in a fairly large proportion of cases, in which the temperature is high and in itself dangerous because of its height, by the use of the plunge we get effects which are most desirable; but there

are conditions of mind and body which are capable of contraindicating the bath just as there may be conditions contraindicating the use of quinine in malaria. Are we then to ignore the contraindication, or are we to allow the patient to suffer for want of these beneficent effects? We are to do neither, but to devise another plan for producing them without the factors contraindicated. This can be done by a modification of the cold bath in such a way as to preserve some of its good and excluding its evil effects, and we find its type in the profusely applied cold sponging. I believe this should be used as follows to produce the effects needed, and just as the bath will prove futile if badly given, so will the sponging: The patient should be placed on a blanket on his own bed, stripped, and the nurse should then apply rapidly over his surface a sponge dipped in water varying in temperature with his reactive power and persistency of temperature. It is my custom in the presence of moderate fever, say of  $102.5^{\circ}$ , to order sponging with water at  $70^{\circ}$ ; if the temperature does not fall readily under this, to use water at  $60^{\circ}$ ,  $50^{\circ}$ , or with ice in it. At the same time that the cold is applied the patient is thoroughly and actively rubbed by another until reaction takes place and the surface of his body is bright red. By this treatment the vascular tone can be as well if not better maintained than if the patient is put in a tub, and no cyanosis and severe shivering occurs. Further, it is possible to properly rub and sponge the great muscles of the back, in which region stasis and bed-sores often form, and it is worthy of note that these parts are not rubbed when the patient is in the tub. The rubbing, or massage, is a very important part of the bath, and if it is not performed both the tub bath and sponge bath are nearly futile. In these cases, when the fever is not marked—that is, as high as  $102^{\circ}$ —sponging with alcohol and rubbing may be used to maintain capillary circulation and improve the nutrition of the connective tissues. We are told by the full bath advocates in this country to tub all cases unless they have hemorrhages or perforation or are far advanced in the disease. It seems very much more rational to suit the needs of each case by modifying the bath, provided we are sure to obtain reaction and overcome stasis and improve nervous tone.

Finally, in regard to typhoid fever let me urge upon your attention the wisdom of giving a more generous diet during the course of this exhausting malady. Surely a pure milk

diet is needlessly scant and loads the stomach with large quantities of liquid. Eggs up to three or four a day, soft custards, arrowroot and thin corn-starch may often be given with advantage, and even meat broths may be used, although they sometimes cause diarrhea and may act as culture media for the bacillus. If Graves' epitaph was to be "he fed fevers," surely typhoid fever is one of them.

Another subject to which we may turn with interest is the treatment of diabetes mellitus. This disease is apparently very greatly on the increase, as I pointed out in a brief paper published about a year ago. The statistics then published showed that the increase seems to be well distributed all over the world, although it is greater in Europe than in the United States. On the one hand the claim has been made that this increase is not real but due to the fact that more careful and competent urinary examinations are made to-day than formerly; on the other hand it is now recognized that glycosuria or sugar in the urine is not diabetes, although it may be—when joined with other symptoms—one of the necessary facts to complete the symptom-complex of the malady. Again, the increasing frequency of the disease is shown by the mortality lists due to this cause and not by the reports as to the frequency of this ailment in living persons. The important thing for us to remember, after recalling the fact that glycosuria in itself is not diabetes mellitus but in some cases a mere overflow of carbohydrate material, is the fact that the malady is a symptom, not a disease in itself. It may arise from a number of causes, and each of these seems widely separated in physiology. This being the case it is not hard to discover why one case will be greatly benefited and another not aided by any particular plan of treatment.

There is not time for me to discuss with you the latest and most probable theories and results in studying diabetes. I wish, however, to call your attention once more to the fact that in that class of patients in which diabetes mellitus is most commonly met with, namely, Israelites, the use of full amounts of opium in conjunction with careful regulation of the diet seems very efficacious in a fairly large proportion of cases. The notes of one case in particular will be of interest in this connection, the more so as they illustrate how patients suffering from true diabetes mellitus can not only obtain good results from the use of large doses of

opium, but also utilize the drug in the system to such an extent as to have almost none of the evidences of its action.

J. M., a Hebrew, aged forty-seven; a salesman. His past history was uncertain. He stated he had had a great deal of trouble recently. His present trouble commenced about seven or eight months ago, when he noticed that he had a great thirst, and drank large amounts of water; he also passed a large amount of urine and his appetite increased greatly. He has lost about thirty pounds in weight since his trouble began. He complains of swelling in his feet and is very weak. For the past three or four days his bowels have been very loose. Patellar reflexes absent entirely, and Argyle-Robertson pupils absent. The ophthalmoscopic examination was negative. The media were clear and the eye grounds were normal. An examination of his urine revealed a specific gravity of 1040; color pale; reaction acid; urea eight grains to ounce; sugar eight and a half grains to ounce; no albumen. The amount of urine passed in twenty-four hours varied from sixty-four to seventy-four ounces.

January 25, 1898. He was put on a diet consisting of eggs, meats, chicken, and milk; and the examination of the urine on February 7, 1898, showed that he passed forty ounces in twenty-four hours, with a specific gravity of 1040, and that the sugar had been decreased to 2.67 grains to the ounce.

The gain so far was of course the result of strict diet. He was now placed on ascending doses of opium amounting to one grain three times a day, to be gradually increased.

On February 12 a urinary examination showed sugar 2.29 grains to the ounce. February 17 he was taking three and a half grains of opium three times a day, and the urine when examined showed sugar 1.78 grains to the ounce and otherwise negative. On February 20 urine examination showed sugar 1.6 grains to the ounce; otherwise negative. On February 24 urine examination was negative; no sugar apparent. On February 26 there was noted a slight return of patellar reflexes, and on February 27 the urine examination was negative in result. He was then taking six grains of powdered opium three times daily. On March 3 urine examination was negative; taking seven grains opium three times a day. And on March 4 urine examination showed a specific gravity of 1020—acid; no sugar or albumen. At no time was there the slightest sign of the physiological action of the drug in any part of the

body, save in the decrease and disappearance of sugar.

The development of aneurismal growths involving the larger vessels has been for many years a source of much distress to medical men, not only because the condition is in itself very grave, but also because it has been one which we have been practically unable to control. The gradual increase in the disease process, the constant distress of the patient in body and mind, and finally the inevitable death from rupture, all render such cases worthy of our pity and of every effort capable of producing cure. It is true that such cases are not always rapidly fatal, but the writer has seen only one instance of aortic aneurism which reached large dimensions in which the patient's life has been prolonged for years and with the power of following her ordinary occupation.

Because of the inevitable fatal ending of these cases surgeons have resorted to many different and heroic measures for their relief, such as the injection of irritants into near-by tissues, the introduction of horsehair or other foreign bodies into the sac, and the passing in of a long platinum needle through which was passed an electrolytic current. All of these measures have failed to produce desirable results and some have done actual harm. There seems to be only one non-medicinal moderately safe and rational method of dealing with aortic aneurism, namely, the method originally devised by Coradi and which has been employed in fourteen cases up to the present time, my own patient being the fourteenth. When we consider the great fatality of aneurism of the aorta, the many accidents which may occur to such patients, and the impossibility of knowing beforehand the exact size and shape of the aneurismal sac, the fact that no one of these fourteen cases has died during the operation is remarkable, and the prolongation of life in a number of them may be said to have thrown much credit upon this procedure. This consists in passing into the sac through a hollow needle a number of feet of wire which has previously been perfectly drawn so that kinks do not readily form in it. The wire is first wound around a small glass spool, so that when it is removed from the spool it will speedily coil up again. After a number of feet have been introduced according to the size of the sac, the wire is attached by its external end to the positive pole of a galvanic battery, while a large wet clay electrode is placed on the abdomen or on the small of the back. By means of a

rheostat the current is now gradually turned on to the amount of about twenty milliamperes, at which strength it passes for about ten minutes. After this the current is gradually increased until about seventy milliamperes are passing, and this may be continued for about one hour. The duration depends, however, upon the signs presented by the aneurism and the patient. If it is evident that the process of coagulation of blood about the wire is well advanced early in the operation, the current is not continued as long as if clotting goes on slowly. As a rule, within an hour or even half an hour, the needle is found to be partly fixed or at least not to be so freely movable by the fingers of the operator or the blood stream itself, and this of course indicates that the clot is holding it in place. The following is the history of my patient, which, as it covers many of the important points connected with the operation, is worth reading:

A man aged forty-six entered my ward in the Jefferson Medical College Hospital early in February, 1898. He has an old specific history, a history of muscular strain and of a bad burn. On admission he suffered from pain, dyspnea, and cardiac disturbance. The pain was typically cardiac and radiated down his left shoulder and arm. On examining his chest a well marked bruit was heard over the entire præcordium and well over to the right and left, and the points of greatest intensity of thrill and bruit were found in the second left intercostal spaces anteriorly. At this point auscultation revealed a loud bruit unmistakably aneurismal, and palpation showed the characteristic expansile pulsation. No marked physical signs could be developed posteriorly. A diagnosis of aneurism of the latter portion of the transverse and beginning of the descending aorta was made. He now developed a brassy cough and was slightly hoarse. Later his sputum was tinged with bright blood, and the pain in the eroded ribs became excessive. As the patient had not improved under the use of ascending doses of the iodide of potassium, combined with aconite to lower arterial tension and quiet the action of the heart, and as the persistently bloody sputum seemed to indicate that the growth was perhaps about to rupture into a bronchus, I advised him to submit to the introduction of wire and the use of electrolysis, although he was informed of its danger and possible failure of doing good.

To this proposition he consented, and on Thursday, March 3, before my class, I per-

formed the operation with the kind assistance of Dr. D. D. Stewart, who has now done the operation a number of times. The skin over the aneurismal sac was first prepared for the operation by being sterilized. A few drops of a solution of eucaïne were next inserted under the skin over the sac to produce dermal anesthesia, and then a gold needle hollowed out like a large antitoxin needle was passed directly into the sac. As soon as it entered the sac blood spurted from it freely, showing that the puncture had been a true one. Fine gold wire was now passed slowly into the sac through the cannula until nine feet had been introduced, when the external end of the wire was attached to the anodal pole of a battery and the current turned on, at first twenty, then forty, and finally seventy milliamperes. Very shortly after the stronger current was applied the needle was seen to be moving less freely, and on testing it with my fingers I found that it gave the sensation of being partly fixed at its internal tip. At the end of an hour and twenty minutes the current was stopped and the needle carefully withdrawn, no flow of blood taking place. The wire was snipped off close to the skin and its end pushed under it. For several hours after the patient was slightly shocked, largely because of his nervousness before and during the operation. After this he speedily rallied, and the next day almost all the bruit had disappeared, until in forty-eight hours it had all gone. The expansile pulsation was also greatly decreased and the thrill much lessened.

I should have stated that care must be taken that the needle is perfectly insulated, as otherwise the skin about the entrance of the needle will slough badly.

The subsequent history of the patient is as follows: Five weeks later the patient is recorded as having been sitting up in a chair by the side of his bed for the past ten days. The expansile pulsation and thrill have entirely disappeared, and the impulse in the second left intercostal space feels like the apex beat would feel if displaced. The bruit has entirely disappeared, and only a double aortic murmur is to be heard. The area over which these murmurs are heard is less than one-half that in which the bruit was heard before the operation. There has been no blood spitting. Cough has ceased. The patient now walks to and from the bath-room with ease. He has had at times severe pains in the chest, which he thinks were chiefly due to "the wire stick-

ing in his skin." He has no dyspnea and no loss of voice. It is now eight weeks since the operation and he continues to improve. The result so far is certainly very promising.

Finally, let me call your attention to the following case operated upon by Stewart in 1893, which lived till the early part of 1897, then died of pneumonia. He was repeatedly under my care in my wards in the winter of 1895 and 1896, and while there I had the pictures taken which I now hand to you, and which I utilized in my book on Diagnosis and in an editorial, on a case of this character reported by Hershey of Colorado in the THERAPEUTIC GAZETTE for September, 1896. The large size and great erosion in this sac, which made death seem imminent and inevitable when the operation was done, certainly greatly prolonged his life, made him comfortable, and relieved him from suffering entirely.

It is manifest that a large proportion of these cases cannot be benefited by any measure, but if we can save even a small percentage of patients suffering from an otherwise fatal malady it is certainly worth trying, particularly as they may return to work and usefulness, as for example in Noble's case of abdominal aneurism operated upon after celiotomy had been performed.

At the risk of being accused of harping upon one topic too continuously I wish to call your attention to two methods of treatment which are in my experience distinctly palliative if not curative in pulmonary tuberculosis. The first of these is the use of camphoric acid in the treatment of night sweats. It has proved so constantly serviceable in my hospital wards and practise for a number of years that I am anxious to see its use more general. If given long enough before the sweat to permit of its absorption, so that its effects may be well exerted, it gives results far better than any other antisudorific with which I am acquainted, if given in cachet in the dose of ten to twenty grains. Even larger doses may readily be used. A very important fact is that it seems devoid of any disagreeable action and does not arrest the other secretions of the body as does atropine.

The second remedy to which I wish to call your attention is the oil of cloves given, by the mouth and hypodermically, for the purpose of decreasing cough and expectoration in advanced pulmonary tuberculosis. Of this treatment I have spoken before, and my further experience confirms my favorable

opinion of it. The use of the oil hypodermically in the dose of five drops mixed with thirty to sixty minims of the best French olive oil, sterilized, is productive of considerable local pain for a number of minutes, but the anesthetic properties of the oil soon overcome this and patients tell me that the relief from cough more than repays them for the pain. The injection is given once a day into the loose tissues of the back. For its simultaneous internal use it is best given an hour after meals in five-, ten- or fifteen-drop doses. These doses must be used with caution as the oil may disorder the stomach. Not only is the cough and expectoration greatly decreased, but the sweats and hectic fever are generally modified to a very great extent.

Last, but not least, in this brief review of some of the less common remedies, let me say a few words in regard to the value of camphor as a general diffusible stimulant in exhausting diseases and for the same purposes in medicine as we commonly employ strychnine at this time. Graves, of Dublin, regarded it as one of the best remedies we possess for the prevention or relief of collapse, and yet the profession has, in its search for new things, given it far less attention than it deserves. It has been found of great value both when given internally and hypodermically in such severe maladies as Asiatic cholera and many other ailments. A large amount of literature might be gathered concerning its value, but I need only quote Alexander, who has used it successfully in the exhaustion of phthisis, and Schilling, who has found its value to be very great in nearly all the severe infectious maladies. While it quiets nervous excitement it seems at the same time to support the circulatory and nervous systems. In advanced typhoid fever I have found it very valuable. The doses I have employed have been fifteen to thirty minims of a 1-to-15 olive oil solution of the drug given hypodermically, and my resident physicians having seen its beneficial results have used it without my orders in a number of urgent cases when I could not be consulted, so effective have they found its action to be.

Our knowledge as to pathology continues to advance not only in respect to new diseases, but far more important in its relation to states which have been thought heretofore to be thoroughly understood. These advances are not alone of scientific interest, for they open up new possibilities as to treatment and explain symptoms hitherto unrecognized or

misunderstood. A few years since the majority of medical men considered that the last new thing had been said about burns and their treatment, or at least that the pathological results of burns were well understood. More recent studies have, however, revealed the fact that there is much to be considered in connection with burn cases over and above the local condition produced by the heat, the more deeply seated secondary lesions and the shock from which the patient suffers. It has been found that a toxemia develops which is an important factor in destroying the patient's life, and that it is our duty to combat this condition quite as much as it is to combat the local damage.

Time does not suffice in which to go over the whole experimental proof of these facts, and it is only necessary to quote some recent studies of Tomasoli, who injured dogs and rabbits by burning, and then studied the effects of hypodermoclysis in aiding them in the elimination of toxins and the survival of shock. All the test animals which did not receive the saline solution in the manner named died within forty-eight hours of the injury, and Tomasoli found that blood serum taken from these animals, being injected into a healthy dog, that animal will die. If, on the other hand, similar animals receive saline injections they nearly always recover. Thus out of ten animals which were burnt and injected only two died, and these apparently from the direct injury rather than from toxemia; and serum taken from the injected dogs when injected into healthy dogs did not produce death as did that from the non-injected animals. Putting these facts to practical use Tomasoli employed similar injections in cases of severe burns in human beings, using 500 to 1000 cubic centimeters of saline solution, and obtained good results therefrom. Whatever may be the ultimate decision in regard to these studies, they open up for us an interesting line in practical research and promise of an additional means of treating a serious medico-surgical condition.

Let me urge upon those whom I have the honor to address one fact in regard to therapeutics which it is well for practitioners to remember when confronted with conditions which seem baffling: namely, that while much of the therapeutics of fifty years ago was crude and not in accord with modern views as to disease processes, much of it was sound. We are so put to it to cure our patients, and so con-

stantly brought face to face with the fact that they are but mortals like ourselves, that we are apt to be off with the old love and on with the new. These facts were recently brought to my attention very forcibly by the following episode: A patient suffering from chronic renal disease with considerable anasarca, marked uremic amblyopia, and the passage of a very scanty amount of urine heavily loaded with albumen and containing very little urea in the twenty-four hours, was given several of the newer diuretics without any material effect. It then occurred to me to employ the old-fashioned prescription of an ounce of juniper berries in a pint of boiling water, to which was added an ounce of potassium bitartrate. The total amount was taken, when cooled, in wineglassful doses, with the result that in a few days the urine increased to a point beyond the ordinary in quantity, the anasarca began to disappear, the vision greatly improved, and the patient passed the normal daily amount of urea. If this remedy had been new it would have been considered quite startling in its effects and widely used when other cases fared as well under it, yet I venture to say that the use of other old remedies which we have discarded at least in part would be fraught with equally good results when newer drugs fail.

While the discovery of the anesthetic properties of ether and chloroform has been followed by the introduction of other agents capable of producing general anesthesia, it is an undeniable fact that our knowledge concerning drugs capable of producing this action, both in regard to the action of old ones and the introduction of new ones, has been disappointingly scanty. Beyond the studies which have been made of the influence of ordinary anesthetic agents upon the respiration and circulation, we know little more to-day as to the method in which anesthesia is actually produced than did our predecessors fifty years ago; and no one has yet succeeded in inventing a substance which has any prospect of supplanting the common anesthetics, which we all recognize have certain distinct disadvantages. In the absence of newer anesthetics it is well for us to continually be on the lookout for improved methods of administering the old ones, and while the majority of physicians are content with the crude methods of previous years, there are others of a more investigating turn of mind who have endeavored to devise methods which would remove many of the disadvan-

tages associated with the older procedures. The number of inhalers which have been upon the market for the use of ether and chloroform is exceedingly numerous, and while their inventors have claimed for them very extraordinary advantages, it remains a fact that the Esmarch inhaler for chloroform and the Allis inhaler for ether are the only ones that have anything like universal recognition, at least in this country; and very many persons are to be found in the profession who freely state that the old-fashioned ether cone and the administration of chloroform dropped upon a napkin still remain our most efficient methods of using these two drugs.

Within the last few years a number of physicians have employed the simultaneous administration of anesthetic vapor and oxygen gas and have found that this combination, particularly when ether is given, tends to prevent vomiting both during and after the operation, that cyanosis rarely occurs, and that the general progress of the case through the influence of the anesthetic is better than under the older methods. For the purpose of this double administration various forms of apparatus have been devised. In several of them the patient is provided with anesthetic vapor and pure oxygen gas alone. In others, and these are rarely met with, he is allowed to have some atmospheric air. In nearly all of the apparatus that we have seen the oxygen gas bubbles up through the ether or chloroform, which has been placed in a wash-bottle, and passes over to the patient's lungs, loaded with the vapor of the anesthetic. There are without doubt certain grave objections to this procedure, for the quantity of oxygen provided to the patient cannot be increased without also increasing the quantity of anesthetic supplied to him; neither can the quantity of anesthetic be increased without increasing the quantity of oxygen, and there are times in every operation in which it is desirable to increase or decrease one of these agents. Then, too, if too much oxygen is given the respiratory center becomes benumbed by superoxygenation of the blood, partial or complete respiratory arrest follows, which is in this instance without any material danger, but with the arrest of respiration it is impossible to give the patient more ether as he does not draw it into his lungs.

By far the best way to use oxygen when ether is given—and I think it always should be employed, if possible—is to allow the oxy-

gen to bubble up in the wash-bottle, thus passing from the cylinder which contains it to the ordinary inhaler which is held over the patient's mouth and nose, the ether being poured upon the inhaler in the quantities which are needed and the oxygen being supplied to the patient by slipping the tube under the edge of the inhaler by the patient's mouth and nose. In this way the patient receives the air which he ought to breathe, the anesthetic vapor, and the additional oxygen, which prevents the disagreeable symptoms which are so frequently met with. In no instance should that apparatus be employed which is now marketed by a number of instrument-makers in which the patient exhales into a large rubber bag which is inflated with each expiration and deflated with each inspiration, the contents of which soon become surcharged with vitiated air, exhaled anesthetic vapor, and impure oxygen. In all such procedures it is wise to let the patient breathe in as nearly a normal manner as possible, and the more simple the apparatus the better it is for the physician and patient. When it comes to administering chloroform by passing oxygen gas through it the objections are still greater. We are learning more and more each day that chloroform when exposed to daylight and the air is capable of undergoing certain degenerative changes, and that the results of these changes are harmful to the patient. Further than this, in chloroform anesthesia it is often necessary to give the patient pure oxygen, but this cannot be done if this double method of passing oxygen gas through the chloroform liquid is carried out. Here, again, we believe that the chloroform vapor and oxygen gas should be kept separate and administered simultaneously or apart as the necessities of the case demand.

The writer desires to protest very emphatically against a habit which seems to be prevalent among young hospital internes, namely, of providing themselves with mouth-gags and tongue-forceps whenever they are about to anesthetize a patient. The writer has seen innumerable cases put under the influence of anesthetics and has made a study of these drugs for years. During that time he has never seen an instance in which it has been necessary to force the patient's jaws apart and keep them so by means of a mouth-gag, except, of course, in cases of operations about the mouth; nor has he seen any instance in which it seemed to him justifiable to pierce the tongue of the patient by means of that

form of tongue-forceps which is provided with one flat blade and one blade armed with two sharp teeth, which pass all the way through this organ, thereby puncturing and bruising it.

The proper manipulation of the head and jaw and neck in the presence of anesthetic accidents in the vast majority of cases is sufficient, and in some instances the forcing open of the jaws and the holding them open by means of the mouth-gag has seemed to aid in the obstruction to breathing by causing the relaxed tongue to fall back into the posterior portion of the mouth, just as it does in a person who is sleeping heavily with the mouth open. The writer mentioned these facts at a recent meeting of the Section on Surgery of the College of Physicians of Philadelphia, and several surgeons who spoke after him agreed that there was rarely, if ever, except in mouth operations, any necessity for the use of these two instruments. They also stated that they had endeavored to find out, without success, who was responsible for teaching medical students their use during anesthesia, as they themselves never employed them nor directed their assistants so to do.

There is no doubt that the mouth-gag and the tongue-forceps are gravely abused, and even if they do no harm during anesthesia, it certainly is unnecessary to produce the after-suffering and discomfort in the mouth which the tongue-forceps often produce.

Finally, the writer desires to express his belief that it is a vital mistake for surgeons to urge upon their assistants the necessity of hurry in producing anesthesia. No physician would think of giving such an enormous dose of chloral that his patient would pass from a condition of wakefulness to deep sleep in the course of two or three minutes. Why should we employ such powerful and rapid-acting drugs as ether and chloroform in such concentrated vapor as to almost instantly produce surgical anesthesia? If the anesthetics are given gently and gradually until the nervous system, both centrally and peripherally, is benumbed, and then pushed as hard as seems wise, disagreeable interruptions of the operation because of threatened accidents, and accidents themselves, will be avoided; for the patient will not struggle and strain his heart and respiratory system at the beginning of the operation, and the general nervous system will not only be saved a large amount of nervous exhaustion, but be protected from shock. Those persons who

have suffered from nightmare are well acquainted with the horrible nervous condition in which they find themselves on awaking, and in many instances the early stages of anesthesia, particularly to a timid woman, are like those of a dreadful nightmare. In one instance a woman who took ether told the writer that she had a delusion that some one was choking her to death, and in this delusion she was not very far wrong, as the writer saw the anesthetist jam the ether cone over her face and hold it there despite her violent struggles, which produced deep cyanosis.

The old saying, "Familiarity breeds contempt," is particularly applicable to the use of anesthetics. Surgeons are so apt to administer these drugs day after day and to be content with the recovery of the patient from the anesthetic on the operating table, or shortly after leaving it, that they entirely overlook these evidences of grave nervous shock which the physician or neurologist frequently meets with after patients have been discharged by the surgeons as entirely well, so far as the operative procedure is concerned. There is reason to believe that with our advancing ideas in regard to the minute anatomy of the nervous system and our studies of the dendrites, at some time in the near future we will understand more clearly the minute physiological action of anesthetic drugs, and then it will be easier for the surgeon to appreciate the grave functional change taking place in the nervous system when they are administered.

In conclusion the writer desires to call attention to a fact already alluded to by him a number of times, and which was first called attention to by his colleague Dr. Martin and himself some ten years ago, namely, that the proper position for the head, when the patient is deeply anesthetized and it is desired to get a clear passageway for the air into the lungs, is in extension and somewhat thrown forward, instead of being extended and dropped backward from the end of the table. Extension and projection forward and backward both pull the epiglottis away from the glottic opening, but in the latter posture the soft palate is strapped over the dorsum of the tongue and the patient is forced to breathe through his nose, which is often partially or entirely occluded by mucus, by hypertrophies, or by polyps; whereas, if the head is extended and projected forward the patient can readily breathe through both the mouth and nasal chambers.

# *SOME PRACTICAL POINTS IN THE TREATMENT OF LATE CUTANEOUS SYPHILIS.\**

By M. B. HARTZELL, M.D.,

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It is not without considerable hesitation that I bring before this Society anything upon so trite a subject as the treatment of syphilis, a subject which has been so often and so exhaustively discussed that it may well be doubted if there be anything new left to be said. And it is not my purpose to present anything novel in the way of treatment; I have no new or wonderful drug, "made in Germany," warranted to accomplish the complete and lasting rejuvenation of the syphilitic, the virtues of which I wish to extol; but I desire to emphasize anew a few practical points in the treatment of some of the late manifestations of syphilis upon the skin, which my own experience has taught me to regard as useful.

The first point of which I shall speak is the effective dose of the iodides, especially the iodide of potassium, in the late eruptions of syphilis. As laid down in most text-books of therapeutics, the dose of potassium iodide is ten grains, repeated several times a day; a dose of less than five grains is almost never prescribed in syphilis, and fifteen- to twenty-grain doses are extremely common. Now it is a fact, easily verified by any one who will take the trouble to experiment in this direction, that much smaller doses than these are often quite effective, and promptly so, in causing the disappearance of the lesions of syphilis upon the skin. So small a dose as a single grain, given three or four times a day, will in many cases remove the tubercular syphilide quite as rapidly as the larger amounts commonly recommended; and that, too, without the derangement of the stomach which in a not inconsiderable proportion of cases attends the use of this drug in the ordinary doses. As illustrating the efficacy of these small doses I may be allowed to refer very briefly to a few cases:

Mary N., thirty-four years old; half-dollar-sized patch of syphilitic tubercles on the forehead; a much larger patch of like lesions in the left scapular region, extending from the top of the shoulder to the lower angle of the scapula; duration seven months. Potassium iodide was prescribed in two-grain doses three times a day, the small dose being employed for the purpose of preserving the case

\*Read before the Philadelphia County Medical Society, March 23, 1898.



for class demonstration a week later. As often happens with ambulant patients, she did not return at the appointed time, but two weeks later; the improvement was then so marked that the case was no longer useful for clinical purposes.

George E.; tubercular syphilide of the palm; duration twelve months. For the same reason as in the preceding case iodide of potassium was given in one-grain doses three times daily. At the end of three weeks the lesions had in large part disappeared.

George S.; tubercular syphilide of the forehead; several months' duration; iodide of potassium in one-grain doses; marked improvement at the end of two weeks.

In each one of these cases the improvement was as rapid and decided as in any in which the usual five- and ten-grain doses had been employed. I would not be understood as advocating these small doses in all cases, since I am well aware that much larger quantities are often necessary to produce the desired result. In the beginning of treatment, however, it is well to try them, since, as Mr. Hutchinson long ago pointed out, it is in the early stages of treatment that these small doses often seem to do quite as well as much larger ones.

In rare cases it will happen that even small quantities of the iodides produce so much disturbance of the stomach that their administration in any effective dose is impossible. In these the drug may be given by enema with quite as good therapeutic results as when given in the usual way. This method of administration, although advised in some text-books, is not, according to my observation, employed as frequently as it deserves to be. The following case well illustrates the efficacy of this method of giving the drug:

Mrs. W. L., who had a number of times been under my care for various manifestations of syphilis, upon one occasion presented herself for the treatment of a gumma upon the forehead. Her stomach had become so intolerant of the iodides that it was no longer possible to give them in effective doses by the mouth, and mercurials seemed to have but little effect besides being also badly borne. Fifteen grains of potassium iodide was given by the rectum twice a day for some weeks with perfectly satisfactory results; and three years later, when there was a marked paralysis of the left half of the tongue, the same method of treatment was pursued with equally favorable effect.

The therapeutic effect of the iodides is

usually so promptly and decidedly manifested in the various forms of tertiary syphilis that we are apt to overlook the fact that in some cases, happily rare, no result follows their use in any dose. It is particularly important to remember this when endeavoring, in doubtful cases, to make a diagnosis *ex juvantibus*. In a few instances I have known the diagnosis of syphilis, at first correctly made from the clinical features presented by the cutaneous lesions, rejected because of the failure of treatment by the iodides. The following case is illustrative of this point:

J. W., a young Polish Jewess, had suffered for a considerable period from an ulcerative affection of the nose which had destroyed a large part of that organ. The diagnosis of syphilis having been made, iodide of potassium was given in large and increasing doses until six drachms a day was being given. This treatment having failed absolutely to produce any remedial effect, the patient's attendant began to regard the disease as probably a scrofuloderma. Before giving up the diagnosis of syphilis completely, however, it was suggested that mercurial inunctions be tried; and within six weeks the nose was entirely healed.

In concluding, I wish briefly to call attention to the advantages possessed by mercurial plaster as a local application in the treatment of ulcerating syphilitic lesions. It is much more convenient and cleanly than the various mercurial ointments usually prescribed; and when freshly prepared it may be made to adhere to the affected part without the use of any other dressing.

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*A SUCCESSFUL MODE OF ADMINISTERING  
BEECHWOOD CREOSOTE IN  
PULMONARY TUBERCULOSIS  
AND OTHER DISEASES.*

BY CHARLES WILSON INGRAHAM, M.D.,  
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Beechwood creosote is a remedy of wide clinical usefulness, and administered with discretion, in a proper manner, it will be found, contrary to the general impression, uniformly reliable in its effects. In my opinion nine-tenths of the disastrous results which have been attributed to the effects of creosote are the result of administering the drug in a manner incompatible with its digestion and assimilation, or to the use of an inferior quality of the remedy, and in many instances both these factors enter into the case.

While creosote is of undoubted value in

the prevention, relief, and cure of a wide range of organic and functional diseases, both acute and chronic in character, it has attained its greatest usefulness in the treatment of tubercular diseases, particularly tuberculosis of the lungs.

Properly administered in pulmonary tuberculosis, beechwood creosote fulfils in a thorough and reliable manner a diversity of medicinal effects which, directly and indirectly, exercise a powerful control over the disease.

By the use of creosote in pulmonary diseases, in the manner which I shall describe in this article, it has, in my experience, shown itself to exercise a very beneficial influence over the functions of digestion and assimilation, and certainly its systematic use protects the invalid against recurring attacks of indigestion and certain forms of gastritis peculiar to tubercular patients. Further than this, I have found that creosote, by a direct germicidal effect, also protects pulmonary invalids against secondary tubercular invasion of the intestinal tract.

In the treatment of typhoid fever it has been shown that creosote, or its derivative, guaiacol, properly administered, eliminates much of the danger of the typical ulcerative processes in the intestines characteristic of typhoid disease, limiting the superficial extent of these ulcers, and in a similar manner lessening the structural damage, thus reducing the danger of intestinal hemorrhage, intestinal perforation, and peritonitis, the most dangerous complications to which the typhoid invalid is exposed. In a like manner creosote preserves the vitality and maintains the structural integrity of the intestinal mucous membrane, protecting the phthisical invalid against secondary tubercular invasion of the intestines. As will be appreciated, by protecting against secondary tubercular invasion of the intestines creosote eliminates from pulmonary tuberculosis one of the most dangerous secondary complications, for after tubercular disease has gained a footing in the intestines, the prognosis immediately becomes very grave.

It would appear doubtful what the exact views of a certain percentage of practitioners are as to just what therapeutic action is expected of beechwood creosote administered in pulmonary tuberculosis. At one time it was apparently expected that a sufficient amount of creosote could be introduced into the general circulation to secure and maintain a germicidal condition of the tissues and

fluids of the body, which in turn would communicate a destructive effect to the tubercle bacilli, destroying these germs *en masse*. But this theory, which for a time prevailed in the face of scientific impossibilities, and to which much of the present unpopularity of creosote is due, has ceased to exist, and creosote is now attaining its just status as a therapeutic agent.

All will admit that creosote has been notoriously abused. Patients treated with the drug after the manner referred to were abused. Diseases treated in the manner referred to were abused.

While the theory existed that it was possible to saturate the blood, the tissues and the fluids of the body with creosote, and secure as a result a germicidal condition of the same, there was a strife among certain members of the profession, particularly in Europe, to determine who should succeed in administering the largest daily quantities of creosote; and so absorbed were practitioners in this mathematical contest that apparently the physiological effect of the drug, administered in these enormous doses, became for the time being a secondary consideration. But happily this state of affairs has ceased to exist, and at the present time no physician thinks of attempting to administer 150 minims of creosote daily, and all understand perfectly that, administered in these enormous doses, the effects are in no way superior to moderate doses, and at the same time the large doses are distinctly harmful. It is the effects of creosote, both direct and indirect, which now receive the earnest attention of the profession, and creosote under these conditions must become recognized in its proper light, and will soon reach the sphere of general usefulness to which it belongs.

No longer does any physician entertain the idea, either in relation to creosote or any other drug, that it is possible to transmit to the general system direct germicidal power, and secure as a result a direct germicidal effect upon the tubercle bacilli sufficient to secure the elimination of these germs from the body. Nature has shown the true manner of eliminating tubercle bacilli from the body, and permanently healing the lesions, and further, what is equally important, protecting the general system against subsequent attacks.

It is through the medium of general constitutional vitality that tubercular disease is permanently cured. General vitality is not restored and maintained through the agency

of powerful germicides. It is the direct product of normal constitutional nutrition and normal tissue oxidation.

Beechwood creosote, by its power to prevent functional disturbances of the organs of digestion and assimilation, by favoring normal action of these organs, by securing and maintaining a healthy appetite, and through these several effects securing uninterrupted digestion and assimilation of nourishment from day to day, brings about a state of general constitutional nutrition, and its product, constitutional vitality.

As to the most effective and least objectionable manner of administering creosote opinions differ, but from my personal experience with various preparations of the drug I believe that the mode of administering creosote that I herewith describe will be found to be a most generally useful and widely applicable method of introducing this remedy into the general system.

There are numerous preparations of creosote, which, as a result of chemical refinement and union with other chemical products, have relieved the drug of its irritating and poisonous character to a greater or less extent, and rendered its use comparatively simple. While these refined products of creosote and chemical compounds containing creosote are of undoubted value, their expense is a factor which interferes with their popular use, and I believe their efficacy does not excel, if indeed it equals, the benefits which may be secured from the crude drug.

I have stated that it is of first importance to secure a superior quality of the drug, and this done, I give my patient one ounce of beechwood creosote and an empty twelve-ounce bottle, and after cautioning him that the remedy is a poison, I direct his attention to the following label upon the creosote bottle: "Put four drops of the creosote in the empty twelve-ounce bottle, and take the same according to the directions to be found on that bottle. The second day put five drops of the creosote in the twelve-ounce bottle, the third day put in six drops, and thereafter continue to increase the amount of creosote one drop each day, until fifteen drops are taken daily. After the dose has reached fifteen drops per day, increase at the rate of one drop every second day, until twenty drops per day are taken. After having reached a daily dosage of twenty drops, increase the dose at the rate of one drop every third day, until twenty-five drops per

day are taken. Do not increase beyond twenty-five drops per day without special instructions."

On the empty twelve-ounce bottle I place the following directions: "After putting in the correct number of drops of creosote, according to the directions contained on the creosote bottle, fill this bottle with fresh water each morning, and take the entire contents of the bottle, during the day, in equally divided doses at regular intervals, making at least six or eight doses daily. Shake the bottle thoroughly each time, immediately before using, and be sure that the creosote is thoroughly distributed through the water."

By beginning with minute doses of four drops per day—which, taken in eight doses, makes half a drop of creosote per dose—and by increasing the daily dosage from this minimum amount in the ratio described, there seldom occurs the slightest trouble from its use, and on the contrary many patients declare that the creosote creates an effect very agreeable.

Many have found that creosote taken in this way relieves the throat of irritation directly, promotes expectoration, and relieves a large proportion of the irritating cough characteristic of tuberculosis.

I first described this mode of administering creosote in the *Medical News* of April 13, 1895, and, as in that article, I recommend that Merck's creosote be used, as it is in my opinion the most uniformly reliable of all creosote products. It is advisable to purchase the creosote in original sealed bottles.

I have, by this method, increased the dose to thirty-five minims daily without the slightest objectionable effects, though in my opinion twenty-five minims per day will produce all the therapeutic effects of larger doses.

Much of the benefits of this mode of administering creosote must be attributed to the manner in which it is introduced into the stomach, though the method of preparing a fresh solution each morning, which protects against stale solutions, and assures the highest degree of potency, no doubt has much to do with the uniformly good results.

In case the creosote fails to stimulate the appetite as desired, it is advisable to add to the creosote water either of the following vegetable bitters: One ounce tincture gentian, tincture columbo, tincture quassia, or a small amount of nux vomica may be added when desirable. Also pepsin, pancreatin and other digestive agents may be added.

I am sure that after this method of admin-

istering creosote has been given a careful test, creosote pills, creosote emulsions and alcoholic solutions of creosote will seldom be prescribed.

*THE STATISTICAL EVIDENCE IN FAVOR  
OF THE EXCISION OF CHANCER AS A  
MEANS OF PREVENTING SYPHILIS  
OR LESSENING ITS SEVERITY.*

BY FRANCIS D. PATTERSON, M.D.,

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Our knowledge of the origin of syphilis is wrapped in obscurity and probably will never be definitely settled. Certain it is, however, that it can be traced back about as far as the history of man; an old Chinese medical manuscript dated 2000 years before Christ contains an accurate description of it.\* Nearly all of the earlier Latin, Greek and Arabian writers on medicine make reference to it. In 1492 syphilis swept through Europe as an epidemic, and this may well be termed the "period of confusion," for the reason that they then believed that all venereal lesions were due to one and the same virus. This was the prevailing belief until the year 1852. In this year Bassereau,† to whom should be given the credit for the original suggestion, and Ricord‡ declared that syphilis and chancre were separate and distinct conditions in nature as well as in origin. Thus the "Dualistic" School came into being. To-day every one recognizes the distinctive differences between chancre and chancroid.

For many years the etiology of syphilis has been the subject of exhaustive bacteriological and clinical research. The discovery of the specific micro-organism has been "announced" more than once, but as yet in no case has syphilis followed the attempted inoculation of a healthy person with these so-called specific germs taken from a culture on artificial media. Though the bacteriological proof of the germ origin of syphilis is still wanting, this disease clinically presents an almost perfect picture of this origin. The chancre is the result of this invasion of germs, and so is only found at the point of inoculation. Its characteristic sclerosis is a proof of the attempt of Nature to prevent as far as possible the further entrance of the

germs into the system. Those germs that do enter are carried on to the nearest lymphatic glands, which undergo hypertrophy as the result of their presence.

The malaise, muscular pains and fever which precede the appearance of the secondary phenomenon have been thought to be the result of a toxemia, the toxin being absorbed from the germs which are yet localized at the chancre. The secondary lesions of the skin and mucous membranes are the direct result of the local deposit of the specific virus. Its transmissibility to offspring is but another evidence of its bacterial origin. The acquired, Prozetas and Colles immunities are all evidences of a similar origin. Still further evidence is seen in the fact that the disease presents different forms or types of severity, varying in the number and virulence of the infecting micro-organisms. Thus it may be so benign that the secondary symptoms will never be noted by the patient and he will be unaware of his condition until the development of the tertiary symptoms, which are in these cases very mild. Again, on the other hand, the disease may run a malignant course from the first; the secondary symptoms being very severe, the tertiary coming on in a few months, and often causing the death of the patient. The clinical characteristics of the initial lesion are briefly its induration, its incubation, and its course. This induration is the result of a round-cell infiltration into the connective tissue and the adventitia of the blood-vessels around the infected area. This represents the attempt of Nature to prevent the spread of the germs into the system.

The extent of the initial lesion often bears a direct ratio to the severity of the secondary symptoms, as clinical experience clearly proves. So recognizing that syphilis is probably due to a specific micro-organism, and that infection with this organism produces the chancre, it would seem that the chancre bears the same relation to syphilis that the poisoned wound does to cellulitis. The prompt removal of any localized area of infection is a sound surgical principle. So it would seem that if we admit the bacteriological cause of syphilis the removal of this area of infection would be the proper treatment.

The first excision of a chancre was performed by Corbis in 1693 in the Hospital of Lille in France.\* Since then this operation has been performed many times with

\* Otis: Practical Clinical Lessons in Syphilis, etc., U. S., 1883, p. 19.

† *Traité des Affections de la peau Symptomatique de la Syphilis*, Paris, 1852.

‡ *L'Union Médicale*, 1850-51, Paris, 1852.

\* Quoted from Leloir, Transactions of the Tenth International Congress, Berlin, 1890, B. iv, p. 68.

varying success, as we see from the following statistics:

| Reporter.                           | Total number cases. | Successful. | Unsuccessful. | Not known. |
|-------------------------------------|---------------------|-------------|---------------|------------|
| Ehlers.....                         | 584                 | 137         | 447           | ..         |
| Crivelli.....                       | 454                 | 102         | 339           | 13         |
| Munn.....                           | 1                   | 1           | ..            | ..         |
| McGuire.....                        | 2                   | ..          | 2             | ..         |
| Mauriac.....                        | 1                   | ..          | 1             | ..         |
| Humbert.....                        | 12                  | 1           | 11            | ..         |
| Bumstead.....                       | 15                  | ..          | 15            | ..         |
| Zeissl, Mauriac,<br>and Neuman..... | 17                  | ..          | 17            | ..         |
| King.....                           | 7                   | 1           | 6             | ..         |
| Leloir.....                         | 33                  | 10          | 22            | 1          |
| Chadzynski.....                     | 30                  | 7           | 16            | 7          |
| Watraszen-<br>ski.....              | 15                  | 1           | 14            | ..         |
| Auspitz.....                        | 23                  | 14          | 9             | ..         |
| Hueter.....                         | 7                   | 2           | 5             | ..         |
| Sigmund.....                        | 39                  | 35          | 4             | ..         |
| Langenbeck.....                     | 2                   | 1           | 1             | ..         |
| Kuszlinski.....                     | 1                   | 1           | ..            | ..         |
| Köllicker.....                      | 8                   | 3           | 5             | ..         |
| Rydygier.....                       | 3                   | 3           | ..            | ..         |
| Tollne.....                         | 19                  | 8           | 11            | ..         |
| Pich.....                           | 1                   | 1           | ..            | ..         |

Thus out of 1274 cases of excision, 925 were followed by secondaries; in 328 cases no secondaries resulted; in 21 cases the result was not ascertained.

These statistics show that excision does not abort the disease in every case, but clinical notes on many of the above cases prove that it does markedly lessen the severity of the secondary symptoms; in fact, in many of them the only subsequent symptoms were those of general adenopathy and slight cutaneous eruption.

In conclusion I would say:

1. That syphilis is a bacterial disease.
2. That the chancre occurs at the point of infection.
3. The induration of the chancre is the attempt of Nature to limit the disease.
4. That the chancre is an infecting wound and a man has syphilis because he has a chancre, not that he has a chancre because he has syphilis.
5. That the chancre should be treated as any other area of local infection—*i.e.*, by its removal.

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#### KRYOFINE.

BY JOHN H. CURTIS, M.D.,

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cian Lake Geneva Sanitarium, Chicago, Ill., etc.

Accepting the theory that infectious diseases are combated by an antitoxin developed in the blood of the infected patient, the elevation of bodily temperature in infectious diseases is undoubtedly one of the elements of recovery, for it is part of the means of the development of the antitoxin which is to neutralize the infection; hence reducing the temperature is not always the wisest therapeutic procedure. Nevertheless the temperature may rise to the point where it is of itself dangerous to life, or the cause of a protracted convalescence due to tissue changes produced. Undoubtedly the best and safest means of subjugating this hyperpyrexia is by means of water, as tubbing, the wet pack, or the sponge bath. One of these is always attainable in hospital practise or where intelligent nursing can be procured. The general practitioner, however, is constantly called upon to treat cases where this desirable condition of affairs is out of the question and yet in which he feels the necessity of controlling the temperature. He is then brought face to face with the question of a choice of remedies, and it is in this connection that I wish to call attention to one of the newer synthetical compounds, a coal-tar derivative—kryofine. I am not desirous of stating that this is the best remedy in all cases of fever, as, for instance, where there is great arterial excitement and tension, and where aconite or veratrum viride is unquestionably the best remedy.

This remedy was discovered by Dr. Bischler and brought prominently to the attention of the profession by the publication of the clinical experiences of Professor Eichhorst and Dr. Bresler. It is produced by heating p-phenetidin with methoxyacetic acid to 248°–266° F.; it crystallizes from water in needles with a melting point at 208.4°–210° F. It occurs as white, odorless and tasteless crystals; soluble in 600 parts of cold, 52 parts of

boiling, water; also in alcohol, ether, chloroform, glycerin, and fixed oils. Upon boiling with alcoholic caustic potash solution the greater part is saponified, and with hydrochloric acid it is saponified with less difficulty than most coal-tar derivatives. Under its influence the pulse becomes fuller and stronger, with a disappearance of dirotism. Abnormal temperature is reduced surely and promptly, in a marked degree, and extending over several hours of time, without rigor or depression, and rarely attended by diaphoresis. Blood-pressure is increased, and according to the observations of Bach the increase of blood-pressure is in harmony with the falling temperature. In the few cases in which there was no reduction of temperature there was an absence of increased blood-pressure. Respiration is not affected. It is eliminated in about six hours, by the kidneys principally, although it does not affect diuresis, and may be found in the urine fifteen minutes after its ingestion. This demonstrates its rapid absorption. The rapid and more or less complete saponification by the stomach and intestinal juices, is probably the secret of its power and the reason for its prompt action. It controls neuralgic pain in a marked and sometimes almost magical manner, and in some persons produces a tendency to sleep. I have been using it for about a year and have the records of a large number of cases, a few of the typical ones of which are appended. Perhaps its chief value will be as an analgesic, because of the greater number of cases requiring relief from pain. For the average adult eight grains seems to be the dose giving best results. In only one case (Case IV) were any objectionable collateral symptoms observed. This was in a lobar pneumonia with very high temperature, and ten grains every six hours produced some cyanosis of lips and finger-tips, which, however, disappeared in a few hours.

CASE I.—Acute follicular tonsillitis. Miss C., aged six; for twenty-four hours very restless, with headache, backache, hot dry skin, pain upon deglutition. Pulse 120; temperature 103°. Examination of throat showed follicular tonsillitis. Had had several attacks during past three years. Gave three grains kryofine every four hours, with an antiseptic and astringent throat wash. Next morning the temperature was normal, and headache and backache gone, with much improvement in condition of throat. She made an uneventful recovery. This is one of eight or nine similar cases.

*Influenza.*—During the epidemic of the past winter I have used kryofine in a large number of cases. The uniformity of clinical symptoms renders extended reports of individual cases unnecessary.

CASE II.—La grippe (bronchial type). I was called to Mrs. M., aged twenty-eight, at 10 A.M., and found her suffering with intense backache, pain and soreness in the muscles of the limbs, especially the extensor groups, headache, a painful tension in the eyes and forehead, considerable faucial congestion, and a severe bronchial catarrh. Intense weakness; some nausea; anorexia. Pulse 115; temperature 103.2°. Gave eight grains of kryofine at 10 A.M. and 3 P.M.; also a stimulating expectorant. At my next visit, 7 P.M., temperature was 100°, pulse 90. Headache and muscular pains disappeared after first dose. Skin was moist, but there was not excessive diaphoresis. Patient was given these same doses at the same hours the following two days, and the temperature did not go above 99½°. There was continued amelioration of all the subjective symptoms. The intense weakness continued for about a week and yielded only after the appetite and general vitality had been stimulated by strychnine.

CASE III.—La grippe (nervous type). Mr. C., aged thirty-eight; headache and backache, with general muscular soreness. Had chronic bronchitis, which was somewhat aggravated; occasional shooting pain through the head, starting from the ears and temporal regions; no appetite; extremely nervous and irritable; melancholy most of the time; insomnia, sleeping but two or three hours per night for the past three nights. Pulse 95; temperature 101°. Five grains kryofine every four hours during the day and ten grains at bedtime relieved the pain and muscle soreness and quieted much of the nervous excitability. Fifteen grains sodium bromide was given with the ten-grain dose at bedtime, and the patient slept twelve hours the first night. Temperature next day did not go above 99°. Stimulated appetite with bitters, and the patient recovered normal condition in a few days.

I have noticed the tendency to sleep in several cases after a ten-grain dose, even when given without the bromide.

In typhoid fever my experience with kryofine has been limited, cold having been the antipyretic agent usually employed. In the cases in which I have used it, however, I have noted that the temperature was reduced

from  $2\frac{1}{4}^{\circ}$  to  $3\frac{1}{2}^{\circ}$ , without producing any unpleasant symptoms whatever, such as chill, depression, cyanosis, etc. I have noticed that the administration of a dose of six to eight grains about an hour before the time of the highest temperature prevents in a large measure the temperature from going beyond the danger point.

In pneumonia the remedy has been used in several severe cases, with a reduction of temperature of from two to three degrees. In one case only (Case IV) was there any collateral effects. I am of the opinion, however, that, except in occasional cases, the use of agents that reduce temperature by lessening the oxygen-carrying capacity of the blood is not good therapeutics in lobar pneumonia.

CASE IV.—Pneumonia. Male, aged thirty-four. Upon the fourth day of disease temperature was  $104^{\circ}$  to  $104\frac{1}{2}^{\circ}$ . Ten grains kryofine, repeated in four hours, reduced the temperature to  $102^{\circ}$ . There was some cyanosis of the lips and fingers, which disappeared in a few hours upon increasing his doses of strychnine. Crisis occurred next day, and further antipyretics were not required. Recovery uneventful.

CASE V.—Mrs. G., aged twenty-seven, nervous temperament, was confined November 21, 1897. Easy labor under aseptic precautions. On the ninth day she expected to get up. Upon my advising a few more days in bed she was greatly disappointed and imagined there was something wrong of which I had not informed her. She cried and worried over it, and next morning her temperature was  $103^{\circ}$ , pulse 118. Careful examination eliminated septic causes. Eight grains kryofine was given, and in the afternoon temperature was normal and nervous system calm.

For the relief of pain kryofine acts very rapidly and surely, the relief often occurring within fifteen minutes. The class of cases in which it acts best are of neuralgic type. Of a record of a large number of cases I append four. In no case have I been disappointed in obtaining relief. Of course pain will return unless the cause be sought for and removed.

CASE VI.—Mrs. H., aged thirty-eight, for twenty years has had frequent attacks of pain over left eye, which she attributes to a fall down stairs in which she struck her forehead on the edge of an iron pan. There is a slight depression in the forehead just to the left of median line. The attacks of pain usually

last three days and compel cessation of all household duties. At the beginning of the last three attacks she has taken ten grains of kryofine and repeated the dose once or twice each day, with almost complete relief of pain.

CASE VII.—Miss W., aged twenty-four; telephone operator. For past three months she has suffered almost continuously with severe lancinating pains in right side of head. For past six weeks she has been confined to bed. She has tried numerous remedies and several doctors with scarcely any relief. The last physician finally gave morphine, each dose of which relieved her for an hour or two. I was called the evening of February 10, 1898, and found her complaining of the pain mentioned. Had not slept for over an hour at a time for several weeks. Scalp was excessively tender, especially on the right side. Photophobia; there was quite a severe acute iritis in the right eye. No history or suspicion of syphilis. Pulse 90; temperature  $99^{\circ}$ . Tongue coated; bowels constipated; poor appetite; rheumatic diathesis suspected. Gave eight grains of kryofine and repeated in four hours. Next morning found patient had slept all night for first time in weeks. Entirely free from pain, but scalp excessively tender. Prescribed a laxative, seven grains soda salicylate every four hours, and atropine and hot applications for the eye. Also directed patient to take kryofine upon the return of pain. This was done upon several occasions for two or three days, and pain has not been severe since the first dose, and has not returned after the third day. Recovery complete.

CASE VIII.—Sciatica. Male, aged twenty-eight; of rheumatic tendencies. Since January 3 he has suffered severely with sciatica of left side. Eight grains kryofine every six hours gave almost complete relief from pain. Patient is taking iodide of potassium, salicylate of sodium and colchicum three times daily and is rapidly recovering.

CASE IX.—Mrs. F., aged thirty-four, six years ago had a severe attack of cerebrospinal meningitis, leaving her with a divergent strabismus. For the past five years she has had occasional attacks of severe pain in back of head and neck, lasting two or three weeks. During her last attack, which began February 1, 1898, I gave eight grains kryofine morning and night, with complete relief of pain. Put her upon syrup of iodide of iron three times daily. There has been no return of pain as yet.

CASE X.—Neuralgia. Mr. B., aged fifty,

in January, 1898, had la grippe lasting about a week. Since recovery he has had frequent, almost daily, attacks of sharp pain in back part of head, lasting usually about six hours. On March 1 I prescribed ten grains of kryofine to be taken at beginning of these attacks. There was complete relief from the first, and no more attacks after the second day.

From the foregoing cases and a review of many others I conclude that kryofine is: First, a prompt and safe antipyretic, unusually free from unpleasant collateral effects; and second, an analgesic of great power and rapidity of action in all cases of neurotic character.

Kryofine is easy of administration, being tasteless, and is best given in powdered form, dry, upon the tongue. The tablets are not advisable unless first pulverized. Their effects are not so rapid or sure, probably because of the mixture of acacia necessary for their adhesion and compression.

#### COLOTOMY AND COLOSTOMY.

MOSETIG-MOORHOF (*Wien. Med. Presse*, 1898, No. 3) reviews the accepted methods of forming an artificial anus, and describes a modification in technique which he has found useful in certain cases. The classical inguinal operation—that of Littre—he terms “colostomy;” it consists in bringing the descending colon up to the anterior abdominal wall, to which it is stitched, the opening into the lumen being made at once or after an interval, according to circumstances. The disadvantage of this simple operation is that it does not entirely prevent the entry of feces into the distal part of the bowel, where they stagnate and tend to set up inflammatory troubles. To prevent this Madelung introduced true colotomy, in which the gut is cut completely across, the proximal portion brought out of the wound, and the distal closed by sutures and returned to the abdomen. This method is not entirely satisfactory, as the distal end tends to become distended by the accumulation of its own secretion, which may eventually lead to ulceration. König and Sonnenburg obviated this difficulty by leaving the upper extremity of this portion open and attached to the abdominal wall below the artificial anus; by this means the rectum can if desired be irrigated from above.

Another means of preventing feces from getting into the rectum is by the formation

of a spur, first devised by Verneuil, whose original plan has been considerably improved by late surgeons. The disadvantage of both this method and colotomy is that they require a long and freely movable colon and mesocolon; when they are inadvisable or impracticable the author recommends the method he has himself devised. This consists in the ordinary operation of colostomy performed at one sitting, but preceded by partial occlusion of the distal portion of the bowel. A ligature is tied around this, occluding it to about one-half its diameter, and the bulging serous surfaces on either side are sewn together with interrupted stitches. An artificial constriction is thus produced, which prevents the accumulation of feces in the rectum. In attaching the gut to the belly wall the author first sews the serous and muscular coats of the intestine to the parietal peritoneum, and then passes the ordinary sutures through both bowel and abdominal wall. If, however, this would lead to considerable tension, he prefers to attach the intestine to the fascia of the external oblique, leaving the skin free but shutting off the muscular planes from the risk of infection.—*British Medical Journal*, March 12, 1898.

#### CHLORHYDRATE OF EUCAINE IN RHINOLOGY, LARYNGOLOGY, AND OTOTOLOGY.

MARTIN (*Rev. Otol.*, February, 1898) states that eucaine, a derivative of cocaine, should be commonly employed as chlorhydrate. This salt is soluble in 15.6 per cent. water and is not decomposed by boiling, thus differing from chlorhydrate of cocaine and allowing the surgeon to be absolutely sure that a sterile solution is employed. Application of saturated solution to the mucous membrane of the throat and nose produced complete anesthesia in four minutes, lasting for six minutes. It is never followed by cold sweats, fainting or excitation so common after the use of cocaine. It often, however, gives a sensation of heat, or excites cough. It does not cause the mucosa to shrink and is not followed by free bleeding.

Cortaz, in discussing this communication, stated that after the employment of eucaine in some twenty cases he returned to cocaine because its effects lasted longer; moreover, the application of eucaine solution was often painful.



# The Therapeutic Gazette

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## Leading Articles.

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### THE ABUSE OF STRYCHNINE AS A STIMULANT.

The papers which have been published in the medical journals during the last few years emphasizing the value of strychnine as a cardiac and respiratory stimulant have been so numerous that many members of the medical profession are wont to regard it as being one of the best remedies which can be utilized to combat failure of either one of these vital functions. While we are thoroughly in accord with the view that strychnine is a powerful stimulant to these functions, we distinctly disagree with the habit which many practitioners have fallen into of employing this drug day after day for considerable periods of time for the purpose of stimulating the heart. Cases are frequently seen by us in which a physician has administered a dose of strychnine for a day or two with the result that there has been marked improvement in the symptoms. This improvement has then ceased to exist; and on the principle that the patient needed a larger dose a larger quantity has been given, until at the end of several weeks the patient has been taking quantities of this nervous stimulant and irri-

tant which at the beginning would have been quite impossible.

As its use is continued, however, the improvement in the symptoms which first took place fails to be maintained, and finally, notwithstanding any dose that can be given, no relief is obtained from its use. In addition to the primary symptoms there is added a condition of excessive nervous irritability which in some patients is not only disagreeable but actually alarming, at least to the patient who has submitted to it, if not to the physician. Particularly is this true where very large doses of strychnine are administered to patients suffering from severe asthenic maladies, as for example in typhoid fever, tuberculosis, or epidemic influenza. In each and every one of these diseases a few doses of nux vomica or strychnine will frequently produce a noticeable improvement in the pulse and in the apparent condition of the nervous system, because strychnine being a powerful stimulant whips up the flagging nervous centers and causes them for the time being to perform their functions with greater activity. If the strychnine is persisted in, and ascending doses are given for a considerable period of time, in addition to the nervous symptoms which we have mentioned there is frequently developed an irritant fever, and particularly is this the case when strychnine is given in full doses during the later stages of typhoid fever or during convalescence from this disease, when, as is well known, anything which disturbs the nervous centers is very apt to result in a rise of temperature. Physicians are wont to watch the patient taking large doses of strychnine in order that this dose may be cut down as soon as twitching of muscles of the forearms or slight stiffness at the nape of the neck is developed, but in our experience, in asthenic patients, long before these symptoms appear there develops mental disquietude and a condition of what might be called "explosive nervousness," which is most unfortunate. This condition we have already called attention to under the name of "strychnine delirium" in an earlier issue of the GAZETTE.

Only recently we have seen several cases which emphasize these points. One was a patient suffering from typhoid fever who did not seem to take and use alcohol very well, although it was evident that his circulation required some stimulation. Strychnine was given to him in moderately large dose, with the result that for a day or two his circulation was improved, but at the end of that

time the poor circulation returned and the patient began having evening rises of temperature of a considerable degree, which induced the physician in attendance to go back to the pure milk diet which had been previously rigorously enforced. As soon as the strychnine was taken away the fever ceased and it became evident that there was no reason for modifying the patient's diet. In another instance a patient, suffering from the depression of influenza during convalescence, received large ascending doses of tincture of nux vomica and became, as he expressed it, "wild with nervousness." In a third instance a student of medicine suffering from asthenopia was ordered, by a well known ophthalmologist, ascending doses of nux vomica, which he took for a period of three weeks, at the end of which time he was taking thirty drops of the tincture three times a day. When he presented himself for treatment he complained of excessive nervousness, as he expressed it, "fearful thoughts," and suffered continually from a sensation that if he was not in a condition of activity something evil would happen to him. These symptoms were entirely removed by stopping the nux vomica and by directing the patient for a few days to take more than his usual quantity of outdoor exercise.

Strychnine or nux vomica is undoubtedly a remedy possessing great powers of stimulation, but we believe that its use should be limited to those cases in which we desire to call upon the nervous system for a sudden effort, as in meeting a crisis in a case of collapse or syncope. It is the lash of the whip which applied violently to a horse about to become "mired" may sting him into such an excess of activity that he raises himself from the quicksand in which he is sinking. So in medicine strychnine may be regarded as a valuable remedy to meet an emergency, but there is nothing which indicates that its continual use as a nervous or circulatory stimulant is wise, and there is much which indicates that such use of it is unwise.

Whatever influence strychnine may exercise upon the circulation is in reality due to its effect upon the nervous system, as it is not a direct cardiac stimulant of any considerable power.

In the discussion of a paper upon Diphtheria, which recently took place in New York, Dr. Winters asserted that in cases of cardiac disturbance in diphtheria he had found that strychnine was practically useless, and he stated that Dr. Welch, of Philadelphia,

entertained the same views. Personally, we agree with these gentlemen to the extent indicated by the previous remarks, but in sudden cardiac failure we believe that strychnine is the remedy which affords more hope of relief than any other which we can employ, although, as is well known, sudden cardiac failure in the course of diphtheria is one of the most fatal accidents which we have to combat.

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*THE VALUE OF HYDRASTIS IN THE  
TREATMENT OF UTERINE HEM-  
ORRHAGE.*

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Hydrastis has been employed by both regular and irregular practitioners for many years as a remedy for catarrhal conditions of the stomach and intestines, and also for inflammatory conditions of a catarrhal character in the genito-urinary tract of the male rather than of the female. The question whether it exercises any considerable power over the genito-urinary apparatus other than by acting as a tonic to the gastro-intestinal mucous membrane, and thereby improving general nutrition, is one of considerable interest and about which there seems to be a good deal of difference of opinion. As long ago as 1886 an abstract of a paper by Kugelman appeared in one of the early numbers of the *American Medical Digest* in which he claimed that the use of hydrastis very materially checked the menstrual flow, and it has been suggested that it be employed not only in cases of excessive menstruation, but in those instances of profound anemia where in the opinion of some clinicians moderation or almost complete arrest of the menstrual function is of value as a means of preventing the periodical drain on the system. A few years after Kugelman's paper had appeared the late Dr. Jackson, of Chicago, reported that he had found this use of hydrastis distinctly valuable, and his evidence may be taken as supporting that of Schatz, of Rostock, who was one of the first to employ hydrastis as a uterine tonic. Dr. W. Reynolds Wilcox has also recorded his experience with the drug in arresting excessive menstruation, and it is worthy of note that Dr. Jacobson considered hydrastis superior to ergot for the purpose named. At most, however, it cannot be expected that the hydrastis will do more than modify the menstrual flow; and Jackson admitted in his paper that by no means in his power, such as tamponing, the use of heat, the use of ergot, or the use of hydrastis,

or of all three together, had he been able to produce artificial suppression of menstruation. That the drug does, however, possess some influence upon menstrual flow and upon hemorrhages from the uterus seems pretty well proven at this time by the gradually accumulating reports which have been placed before us, and while it is by no means a specific, it is one to be considered when the physician comes face to face with a condition which these peculiarities of the remedy will meet.

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*THE TREATMENT OF SEROUS EXUDATIONS IN THE PLEURAL CAVITY BY THE SALICYLATE OF SODIUM.*

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A number of years ago particular attention was attracted to this method of treating pleural effusions by an article which was published in the original columns of the *THERAPEUTIC GAZETTE*. Since that time the writer of this editorial has attempted this method of treatment in a number of cases without obtaining satisfactory results, perhaps because he had more confidence in other measures and resorted to them before the salicylate had an opportunity of doing good. In a recent issue of the *Archives Russes de Pathologie*, vol. iv, 1897, Poliakoff insists very emphatically upon the utility of the salicylate of sodium in the treatment of pleural effusions. He has never seen disagreeable symptoms produced by the administration of the drug under these circumstances, and recommends that it be given in cachet, and immediately after the ingestion of the cachet that the patient take a drink of some alkaline water. Should the dose of the salicylate seem to depress the heart, this may be avoided by the simultaneous use of a little caffeine. After the salicylate has been administered for three or four days its use is suspended for a day or two, and it is then renewed.

It would seem from Poliakoff's studies that the salicylate is particularly useful in chronic apyretic pleurisy. He records six cases in which this treatment was used. In five of these cases the salicylate produced results which were exceedingly satisfactory.

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*THE ADMINISTRATION OF ANESTHETICS.*

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Upon this topic, one of cardinal importance to every practitioner of medicine, there have lately appeared in the London *Lancet*

three lectures delivered by Frederic Hewitt, based generally on a wide experience as an anesthetist, particularly on 6657 administrations of anesthetics conducted at the London Hospital during the year 1897. On the first of that year Hewitt adopted a system of recording the cases of anesthesia, providing books and special tabular forms so that every instance of the administration of the narcotic in any part of the hospital could be properly noted. It is interesting to observe that out of the total number of cases nearly 3000 were of ether and more than 1000 of nitrous oxide. Chloroform was relied on solely in 677 cases, the A. C. E. mixture in 510, ether followed by chloroform in 293, nitrous oxide and oxygen in 240, and other successions in the majority of the cases unaccounted for. It will be noted that Hewitt has not confined himself to any particular method, but has had a sufficient clinical experience to speak with authority upon nearly all the combinations in common use.

As to chloroform, he states that within a few years it was the anesthetic in routine use, but that confidence in it has been shaken by experience. He particularly warns against the employment of certain recently devised chloroform inhalers. He states that for giving chloroform in the ordinary routine way there is nothing better than Skinner's mask.

Referring to the general effect of chloroform as an anesthetic, Hewitt states that, other things being equal, the stronger the patient the greater the trouble in giving the anesthetic. Deaths from chloroform are the most common in the middle period of life, when men are most vigorous, and more men die than women under this anesthetic. The drug is most lethal during the early stage of its administration, and a very large proportion of the accidents have occurred in connection with minor operations, which are most common in vigorous subjects. The explanation of this is dependent upon the fact that during the transient, very imperfect anesthesia, the muscular system is thrown into a condition of spasm, most marked in the most powerfully developed.

Hill and Barnard state that deaths which take place comparatively early in chloroform administration are usually due primarily to rigidity, struggling, and holding the breath; secondarily to a considerable quantity of the anesthetic being taken in during the succeeding respirations so that the right heart, already overfull, is paralyzed by the chloroform carried directly to it.

Referring to the practical administration of chloroform, Hewitt states that every breath should be heard or felt, that watching the chest or abdomen is a fallacious guide, and that it is of paramount importance to avoid all obstructions to breathing, except a very minor degree recognized by a softly snoring sound. In patients with perfectly free respiratory passages, and often following a phase of respiratory excitement, a condition of tranquil or almost imperceptible breathing may arise quite independently of the overdose of the agent. It indicates partial or moderate anesthesia and is of particular importance, because it is liable to lead to pallor and pulse feebleness, probably because the heart of the chloroformed patient is less able to meet the strain thrown upon it by the occurrence of feeble respiratory action than the heart of the patient under ether. Hence this type of respiration should be avoided, and a moderately snoring respiration when once induced should be maintained by the fairly free use of the agent.

Hewitt states that if snoring has never come on, or is allowed to disappear, it is a good plan to artificially induce it by gently pushing the lower jaw backwards. The results are that the breathing at once increases in force and circulatory depression is averted. In regard to the pulse Hewitt stated he was at a loss to understand the views of the Hyderabad Commission as to the desirability of systematically disregarding its condition until he saw Surgeon-Lieutenant Lawrie administer chloroform in his hospital. He noted that the anesthesia with which he worked was not so profound as that commonly induced in England, the conjunctival reflex being rarely abolished. Under such circumstances watching the pulse is evidently unnecessary; indeed, its indices may be distinctly misleading, as, for instance, its condition just before vomiting, when the feebleness will be construed by the inexperienced anesthetist as showing that the anesthetic should be removed, whereas it should really be pushed. When chloroform is pushed to its full surgical limit the pulse should be carefully watched. Arterial tension falls. A certain degree of pallor and a slow and rather feeble pulse are not necessarily indicative of danger; this condition often precedes respiratory failure and enables the anesthetist to avoid this later and more serious complication.

Hewitt states that there is much to be said in favor of the use of ether and chloroform in succession. The stage of rigidity and excite-

ment, which is the dangerous stage in chloroform, is safely passed over under the stimulant effects of ether. Having secured a proper degree of ether anesthesia, chloroform may be substituted, and there will result a better type of chloroform anesthesia than if this drug had been given from the beginning.

Hewitt has adopted this principle for several years and is able to use chloroform without the occurrence of those untoward symptoms which are bound to occasionally arise when this agent is given from the commencement of the administration. He regards this development in our methods as one of the most important of recent years. It is especially indicated when ether causes cough, embarrassed breathing, or the secretion of much mucus, or when the operation is likely to be a protracted one. Some practise is needed to know when and how to effect the change. The rule to be followed is that there should always be some evidence of the patient having emerged from ether anesthesia when the chloroform is applied. As a rule the conjunctival reflex should be present when the change is effected, and in abdominal operations this change should be made before the operation is begun. Very little chloroform will be required to keep up the proper degree of unconsciousness.

As a result of a very large experience Hewitt uses much less ether and much more chloroform than formerly. He holds that it is as safe to keep up the anesthesia of chloroform as that of ether, and that the risk of subsequent bronchial and pulmonary complications is undoubtedly reduced. He has often anesthetized according to this procedure the patients in the sitting posture, and in not a single instance has he been compelled to place them horizontally.

By his arrangement of cylinders he is able to administer nitrous oxide and oxygen in combination and to keep up the anesthesia for an almost indefinite time. The method is the safest at present known and is devoid of after-effects. The anesthesia is not so deep as that of other agents commonly employed; the muscular system is not so completely relaxed; nor is it possible always to completely abolish reflexes. He is not satisfied with it in severe surgical cases. His best results have been with rather debilitated women or children. Robust and vigorous male adults, especially those of alcoholic habit or excessive smokers, are not good subjects. In one case of breast excision

in which the anesthesia was kept up for thirty-five minutes, a good deal of vomiting followed.

Hewitt's observations concerning the use of nitrous oxide before ether are especially serviceable. This plan of anesthetizing is at times highly inapplicable and unsuccessful. Cases are seen in which there has been a narrow escape from fatal asphyxia. Muscular men of middle life who have become rather obese should never be anesthetized by this method. If it is employed only a small quantity of nitrous oxide should be used, and ether should be gradually added to it. The plan of administering a full dose of nitrous oxide and changing to ether is, however, very useful in children and in women, provided that there are no contraindications to ether in the patients.

The use of nitrous oxide, ether and chloroform in succession is warmly commended. The initial anesthetic, nitrous oxide, rapidly destroys consciousness and prevents struggling. The intermediate anesthetic, ether, is useful because the circulation will remain unimpaired by the strain imposed upon it should rigidity or suspended breathing arise before deep anesthesia, and because the stimulant effect produced by the ether lasts for a considerable time while chloroform is being given. Chloroform is administered because of the quiet and deep anesthesia which it produces, because of its great convenience, and because of the rarity with which bronchial and pulmonary after-effects are met with after its use. Hewitt states that given no special contraindications there is no better plan of anesthesia than this.

The A. C. E. mixture he commends for middle-aged and powerfully built men, with double chins and thick necks. It is first dropped upon an open Skinner's mask; after a couple of minutes a Rendle's mask with more of the mixture upon it may be substituted; and immediately any rigidity begins to show itself the Rendle's mask may be exchanged for an Ormsby's inhaler charged with ether. By this plan he has been enabled to successfully anesthetize without any difficulty many such subjects.

Of the total number of cases anesthetized by Hewitt there were thirteen which exhibited threatening symptoms. The four factors giving rise to dangerous symptoms are, he states, the anesthetic itself, the state of the patient, the posture of the patient, and the surgical operation.

In the first case which exhibited danger-

ous symptoms breathing stopped before the patient was thoroughly anesthetized. As the patient was greatly cyanosed ten ounces of blood were drawn, and the breathing immediately commenced. It is very common just before anesthesia is established for the breathing to become temporarily suspended. This is due to acts of swallowing, which are more tardily performed than when consciousness is intact, thus closing the glottis. In addition there may be general muscular spasm. In the vast majority of cases this impaired breathing comes on just before stertor and passes off spontaneously, or may be made to do so by removing the inhaler, rubbing lips with a towel, or pushing the lower jaw forwards. In more obstinate cases, in which the jaws are clenched and the neck muscles are rigidly contracted, it may be necessary to separate the teeth and to pass the finger to the back of the pharynx, when breathing will recommence. Unless this condition is remedied it may pass on to a dangerous or even fatal degree of asphyxia.

The second case presenting dangerous symptoms was one of disease of the heart in which ether was given, full strength by the Clover inhaler, since the patient was well built and of alcoholic habit. This method commonly produces in these patients the most satisfactory anesthesia. In cases of heart disease in which there is evidence of want of compensation, all asphyxia methods should be carefully avoided. Nitrous oxide alone or in conjunction with ether is equally unsuitable. The best anesthetic in such cases is the A. C. E. mixture, or if for any reason ether should be preferred, it should be given by an open inhaler which does not by eliminating oxygen throw extra work upon the right side of the heart.

When the patient is of full habit he naturally becomes purplish or bluish under ether; sometimes he becomes ashy or livid, and this must always be regarded as an indication of danger. Moreover, whenever the lids are only partly closed and the globes of the eyes are turned slightly upwards so that more of the sclerotic than usual is visible, attention should be directed to the patient's general condition. Widely opened lids with the globes fixed in their normal horizontal axes may be met with in the most satisfactory types of anesthesia. Flaccid, nearly closed lids, displaying subjacent sclerotics, are usually indicative of an unsatisfactory condition.

There was one case of severe bronchitis following ether administration, and one inter-

esting case of suspended breathing during recovery after ether administration for putting up of fracture of the femur. So far as the administration of the anesthetic went, there was very little to note beyond that a great deal of mucus was secreted. When the anesthetic was discontinued, the patient became rigid, with clenched jaws, cyanotic, obstructed breathing incidental to commencing vomiting. Prying open the jaws was performed, the tongue forceps applied, and the finger passed to the back of the throat. Respiration was not started by any of these measures. Tracheotomy was then performed, and directly this had been done a great deal of mucus escaped from the tube. Hewitt states that patients should be turned on the side immediately the anesthetic is discontinued. By this procedure mucus will tend to flow out of the mouth, the tongue will gravitate into the cheek, and stertor will cease.

Of the 6657 cases of anesthesia there were only three in which the anesthetic could in any way be held responsible for the fatal issue, and only one in which the anesthetic was the sole factor.

In a case of appendicitis following typhoid fever the patient apparently died of bronchopneumonia thirty-four hours after operation. Hewitt holds that the chances of pulmonary complications would have been less if chloroform or the A. C. E. mixture had been given, and that from this experience it is fair to infer that the unusual cyanosis met with during the administration might with advantage have been taken to indicate that a change from ether to chloroform should have been effected.

The immediately fatal case occurred under chloroform and during the period of preliminary excitement.

As to the gastric after-effects of anesthetics other than nitrous oxide, in 275 cases in which this was noticed there were none in 109, slight in 109, moderately bad in 35, and severe in 22. Calculating on a percentage basis, it is noted that 36 per cent. of the ether cases had no after-effects; while 32 per cent. of the ether cases followed by chloroform were similarly fortunate; 7.2 per cent. exhibited severe after-effects after ether. Patients are more apt to suffer from slight after-effects when ether has been used, but the chances of protracted vomiting are greater when chloroform has been administered. There can be no doubt that abstinence from food for at least four hours before operation should be enforced. Clear soup or beef tea

is the best form of nourishment before operation. The practise of giving a patient beef tea three hours before operation is open to objection. The stomach should not only be emptied, but digestion should have been finished for some little time.

A tabulation shows that the severity of the after-effects is markedly influenced by the continuance of the anesthetization. As to the prevention of the gastric after-effects, in addition to previous regulation of the diet it is essential that the bowels should be thoroughly evacuated; this is accomplished by administering a purgative on the night before the operation and an enema on the morning itself. The patient should be rendered anesthetic as rapidly as possible; a deep anesthesia, free from swallowing movements, should be maintained. The head should be kept to the side for the escape of mucus and saliva, and the mouth should be frequently wiped out. The patient when in bed should be turned well upon his side and the bed should not be moved, and the room should be kept quiet. No nourishment should be given until the patient himself asks for it.

If nausea, retching or vomiting be present the patient should be given at intervals two or three ounces of very hot water to drink. The taste of ether is best overcome by moistening the lips with lemon juice. If there appears to be a neurotic element present, enemata of twenty grains of bromide of potassium in two ounces of water will often answer well. The inhalation of vinegar from a towel is very useful in arresting vomiting, as is also the application of mustard leaf to the epigastrium.

This communication of Hewitt's is extremely important, as it is founded upon the careful, minute, detailed observation of an accomplished and widely experienced anesthetist. The diversity of his methods and the multiplicity of his apparatus do not commend themselves to an American surgeon. One important lesson, however, taught by his paper is that there are merits in ether, chloroform, and nitrous oxide; that each has its appropriate place in surgery; and that in place of the slavish adherence to routine it would be wise to judiciously select in accordance with the condition and temperament of the patient. His practical observations upon certain difficulties that arise during anesthetization, his strictures concerning the employment of chloroform and nitrous oxide in the robust, are useful. His reasons for substituting ether by chloroform will scarcely be

conclusive to American surgeons, save in exceptional cases—*i.e.*, those with a tendency toward pulmonary congestion. Under such circumstances the following of Hewitt's plan may well be commended. It would perhaps have been well to have called attention to Laborde's method of traction upon the tongue in restoring respiration during the late period of anesthesia and flagellating the epigastrium by means of wet towels.

The reversed abdominal motion—*i.e.*, retraction of the epigastrium and abdomen—upon expiration in diaphragmatic paralysis is frequently observed when the anesthetic has been pushed too far. Hare and Martin showed in experiments that the diaphragmatic muscle is usually the first to be paralyzed, and have frequently called attention to the importance of carefully watching the abdomen to see that the diaphragm is properly performing its function and is not being sucked up into the chest with each inspiration, thus preventing the lungs from properly expanding. The attention which Hewitt calls to the condition of the eye is not in accordance with that held by the American surgeons; but it must be remembered that the Clover apparatus is not commonly employed by American anesthetists. It is very common to see the eyeballs turn up and the lids half open. We have learned to regard wide dilatation of the pupil as the only important ocular symptom which is likely to indicate grave danger. In the great majority of anesthetized patients the eye rolls up as it does in sleep.

The advice given to push the jaw backwards for the purpose of inducing slight stertor seems to be unwise. With experience the anesthetist soon learns to recognize the quiet, absolutely free breathing which is an index of the perfect anesthesia. Pressing backward of the jaw always obstructs the respiration to a greater or less degree, and the only manipulation which should be practised upon it is to lift it forward and to extend the head for the purpose of rendering the air-passages freer.

A great disadvantage of chloroform to which Hewitt has not called attention is its lethal effect upon the kidneys. There is some superstition to the effect that ether is to be avoided when a patient who requires anesthesia has any form of nephritis. All the observations of recent years have proven apparently beyond contravention the falsity of this doctrine. In Hewitt's large number of cases there is not a single death

which occurred during the administration of ether, although this anesthetic was given in a greater number of the sum total of his cases. Of the very few who took chloroform one died absolutely from the anesthesia, since the fatality occurred in the early stages of its administration.

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## Reports on Therapeutic Progress

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### *PNEUMONIA TREATED BY HEAT OVER THE SPINE AND BY THE INHALATION OF PURE OXYGEN.*

The *Boston Medical and Surgical Journal* of December 2, 1897, contains an article on pneumonia by B. O. KINNEAR, of New York. He tells us that the treatment of pneumonia in the congestive stage, and that of red hepatization, by heat over the dorsal sympathetic ganglia is but little known as yet to the profession, though it has been occasionally brought to their notice during the past thirty years. It is Kinnear's object to demonstrate what heat so used will accomplish in this disease in its early stages, and to give evidence of the soothing, supporting and life-restoring power of properly combined and prepared oxygen.

It appears to the writer that the most efficient treatment in the early stage of the disease is to contract the arterioles in the inflamed area, as well as throughout the upper body, because from post-mortem appearances we know that in cases of pneumonia where much of the lung is involved there is also found effusion upon the pleural surface, pericarditis, and even the upper part of the peritoneum may be found covered with lymph; while delirium and cerebral meningitis may be present.

How then may we successfully accomplish this much to be desired end?

Kinnear has found that very rapid and satisfactory results can be obtained by applying the spinal hot-water bag, or its equivalent in heat and moisture, over the dorsal sympathetic ganglia. By the application of heat over these knots of nervous tissue in this region he has, he states, over and over again, during the past sixteen years, subdued nearly all the acute forms of inflammation affecting the respiratory apparatus.

A double-columned hot-water bag may be applied, or two rows of flannel may be used (being first dipped in water no hotter than 120° F.) instead of the hot-water bag; the space of one inch should be left between the

rolls, so that the heat will not cover the spinal vertebrae direct. One yard of flannel, eight inches wide, rolled evenly from each end toward the center until the space of one inch remains between the rolls, may then be sewed so that they will not unroll. They will answer if the hot-water bag is not at hand, and may be made the means of saving many lives in the earlier stages of all inflammations of the respiratory passages. They should be wrung out after dipping in water at 120° F., and then quickly applied between the shoulders, covered with a thick dry towel, and the patient told to press against them. The application when flannel is used should be changed every twenty minutes, until decided relief is obtained to the breathing, the pain, the flush of the face, and the bounding pulse. It may then be removed until there are signs of a renewal of the symptoms, when it can be reapplied, and will be found at once to check them. The hot-water bag used in this way in active congestions and early inflammations will always reduce the temperature and the pulse, and excite the sweat glands to action, thus giving relief to the symptoms; evidencing also by auscultation a speedy progress toward recovery, and therefore a return to normal of the caliber of the pulmonary capillaries in the stage of congestion—and in the condition of red hepatization, a rapid resolution or reabsorption of the inflammatory exudation.

In bronchitis, in pneumonia alone or when accompanied by pleurisy, in acute laryngitis, and in the frequent pleurisy of phthisis, the author has quickly controlled the inflammation by this means.

In some people Kinnear has found great prostration to follow the rapid reversal of the inflammatory process in respiratory diseases; and he believes this to be due to some extent to the shock to the nervous system, both of the attack and also that caused by the sudden restorative change. In the past he had often wished that he possessed some agent which would improve nutrition, stimulate the nerve centers, and aid restoration of normal inspiration by rapid oxidation of the blood and the tissues, while conquering the inflammation by the hot-water bag.

Such an agent Kinnear thinks has been found in the inhalation of pure oxygen properly diluted by combination with a gas of lighter specific gravity than oxygen. Pure oxygen when used alone is too dense in its specific gravity to be absorbed by the capillaries, being also too powerful an oxidizing

agent, and very irritating to the mucous membranes, especially in subacute forms of inflammation.

The gas which has been found best suited to dilute the oxygen is nitrous monoxide, and the formula used by the London Oxygen Hospital is considered the best by all leading writers upon oxygen. It is pure oxygen two parts, one part of nitrous monoxide, and a small equivalent of ozone added to keep the oxygen fresh. This employment of ozone does away with any objection which might be made to gas compressed in cylinders, as it prevents rapid deterioration.

Kinnear cannot speak too emphatically upon the proper formula and the quantity of the gas, because only by strict attention to both can we ameliorate and subdue diseased conditions.

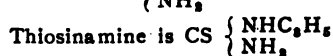
Oxygen as a therapeutic agent is but little understood by the medical profession; and it is a very serious error to suppose that the ordinary commercial oxygen manufactured by calcium-light makers is a proper agent to be employed for therapeutic purposes. It is often saturated with chlorine and other deleterious gases, which, being exceedingly poisonous, are most injurious to the patient. The physician should therefore obtain the very best quality.

#### THIOSINAMINE.

In the *New York Medical Journal* of November 6, 1897, Dr. TOUSEY makes a further report on the therapeutic uses of thiosinamine and calls attention to his article published in the *New York Medical Journal* of May 2, 1896, in which he stated that he had begun his study and use of this drug in 1894, and that, so far as published, his were the first cases of keloid treated with it. The writer then stated that while the number of cases was small the results had been positive.

He writes further upon the subject in order to answer a number of inquiries, and also to record the ultimate results in the cases already described. In addition thereto, a number of later cases in his own practise and that of others will be reported.

The drug itself is derived from oil of mustard seed, and belongs to the same chemical group as urea:



It is crystalline and does not keep well in an



aqueous solution. It is amply described in all modern works on chemistry and in Merck's price list of drugs.

Thiosinamine first appears in medical literature as one of the things experimented with in the hope of finding a cure for tuberculosis. In this it proved an addition to the long list of failures. It was studied by Hebra, Van Hoorn, Richter and Zedziak as to its influence upon tuberculous processes, its bacteriology, and its physiological action, notably upon the blood. They also tested its therapeutic action in several of the conditions mentioned below.

These investigations showed it to have no curative influence upon tuberculous processes; not to be even a feeble germicide, but to have two properties from which Tousey made the deduction that in this drug we possessed the long-sought means of cure for keloid. One of the observations which led to this discovery of the writer's was that its use was followed by the softening and relaxation of the deforming cicatrices left by lupus and the consequent cure of extreme cases of ectropion and the like. Another was that its hypodermic administration produced an immediate disintegration and elimination of white blood-cells, so that the number present in the blood fell to one-third the normal. This was followed by a leucocytosis, or increase beyond the normal, persisting for forty-eight hours.

The answer to the question, How does the writer explain its effect upon keloid? is this: This tremendous cellular activity in the circulating medium calls forth a coordinate activity in the leucocytes and fixed connective tissue cells throughout the organism, and an increased removal of effete or lowly organized material by way of the blood and lymph channels. This view is strengthened by the recorded observations of diuretic action when beginning its use. Accurate observations made upon ward patients in German hospitals showed it to be an active diuretic and to hasten the absorption of fluid effusions. The first of these effects has also been observed by a correspondent of the writer's in Philadelphia. It should be stated here that where he has quoted from private communications he has withheld names and details, so as to enable each gentleman to report his own results when he shall have formed his final opinion of this method of treatment.

For nearly a year past Tousey has been using and now recommends a hypodermic solution made by dissolving ten parts of

thiosinamine in one hundred parts of a sterilized mixture of water and glycerin. This solution keeps well and is non-irritant. He injects twelve or fifteen minims, as a full dose, into the muscles, triceps, or glutei, every three days. Others have used three grains of thiosinamine as a usual dose, and in a great many cases this is well borne. The writer thinks the dose should be gradually determined for each individual case. In the author's experience doses much larger than fifteen minims of the solution caused a slight feeling of nausea after each injection.

Tousey is in a position now, after a wider experience with it, to state most positively that the use of this drug is free from deleterious effects of any kind. He realizes that before it can be established as a successful treatment for keloid and the like, equally favorable therapeutic effects must be obtained by many other observers. These corroborative observations are being reported to him constantly.

Too large or too frequent doses might cause slight nausea, and too long continued use without intermission might produce headache and malaise; but neither of these has occurred in the writer's cases. Carefully conducted, the treatment produces a general tonic effect, and his cases of keloid have not lost a day from work or business during the treatment.

The author's advice has been asked about its use in the treatment of corneal opacities. He states that he would inject twelve minims of the solution into the triceps every three days and continue with the same dose until at least twenty-seven injections had been given. Marked improvement in vision may be promised, but the improvement in appearance is not so striking. In every case, therefore, this treatment should be used for definite and serious impairment of vision, and the acuteness of vision should be carefully measured and recorded before and after treatment. An observation of the writer's own, recorded in this paper, will show his reason for believing that any benefit obtained in the absorption of cicatricial tissue or the like by this drug is a permanent one. As mentioned in his first article, a number of cases of corneal opacity have been successfully treated by Hebra and by Richter. In a case reported by the former the patient before treatment could hardly avoid collisions with people on the street, and afterward could read the time by the high city hall clock in Vienna. Hebra states that a large number of cases of

mild impairment of vision from corneal opacity have been entirely cured by treatment with thiosinamine at the Rudolf-Spital in Vienna.

A recent case communicated by an oculist of Philadelphia showed very marked improvement in vision and corroborated earlier observations as to diuresis and as to increase in appetite and weight during treatment. There occurred after one injection slight temporary anesthesia of a portion of the forearm.

The possibility of the last mentioned occurrence was mentioned in the writer's first article, and was there attributed to a mechanical injury to a cutaneous branch of the musculo-spiral nerve. Similar cases are on record where ether or antipyrin has been given by the hypodermic method.

In this connection should be recorded an unfortunate case in the hands of one of the writer's correspondents: The patient suffered from deforming syphilitic cicatrices of the neck and face. The doctor injected thiosinamine into the triceps, using the strictest antiseptic precautions. Shortly afterward the arm became swollen and painful, and death ultimately ensued from septicemia.

Such a case brings forcibly to mind the necessity for eternal vigilance in the employment of the hypodermic method of medication, but is so rare as not to lead any one to abandon its use where it seems to be the best means of introducing a drug into the system.

In a recent case of the writer's he administered thiosinamine by the mouth. Three grains was given in capsule every day for eight weeks without any disturbance of any sort, and with the therapeutic effect sought for. This is the only case in which he has given it by the mouth, but he has seen no reason why this, the simplest, may not prove to be the best method of administering the drug. Two of his correspondents have used an aqueous solution hypodermically, and report less pain and equally successful results.

The use of thiosinamine for corneal opacity should be limited to cases in which there is no danger of fanning a latent inflammatory process into an active one. In the case of the eye, such an effect would necessarily be detrimental; but elsewhere it is sometimes of benefit. The author cites a case mentioned in the first article: the use of this drug in an old latent case of osteomyelitis of the tibia started up suppuration, resulting in the extrusion of an old sequestrum and definite healing.

One of the writer's correspondents reports the cure or clearing up of a cataract under thiosinamine treatment. It certainly was innocuous; and if this observation should be verified by other physicians in other cases of cataract, it will indeed be a most wonderful thing.

For keloid, cicatricial contractures, and hypertrophied scars, further experience in its use has proved its utility.

In the author's first published case of keloid the patient remains now, three years after treatment, entirely free from recurrence, and shows only a broad, flat, flexible cicatrix.

[See the THERAPEUTIC GAZETTE for July, 1896, and page 403 for 1897.—ED.]

#### ALCOHOLIC STIMULATION IN CONTINUED FEVERS.

What are the indications for the use of alcoholic stimulants in such febrile diseases as typhoid, grippe, pneumonia or septicemia? This is the question put and answered by CABOT in the *Boston Medical and Surgical Journal* of December 2, 1897.

There are many who regard the existence of one of these febrile diseases as of itself a sufficient reason for giving alcoholic stimulants. For example, in Wood and Fitz's "Practice of Medicine" it is laid down that "alcohol in some form should be used in every case of typhoid from the beginning, unless there be some very strong reason for refusing it, as where there is a distinct heredity towards drunkenness." Many who might not agree to this course in typhoid believe in using alcohol in every case of pneumonia, whatever its nature, and in all severe septic and pyemic processes the author supposes that the majority of good practitioners in this vicinity would prescribe alcohol as a matter of routine. From this point of view, the diagnosis once established, the exhibition of alcoholic stimulants is a matter of course.

On the other hand, there are in many modern text-books signs of a reaction against this wholesale and routine use of stimulants. For instance, W. Gilman Thompson, in his new work on dietetics, says: "I am inclined to prescribe very much less alcohol than formerly;" and again: "The routine employment of alcohol in typhoid is to be deplored." Pepper, in the edition of 1894 of the "American Text-book of the Theory and Practice of Medicine," says: "Until recently the symptoms of alcoholic overaction (in typhoid)

were often mistaken for advancing debility, and regarded as an indication for still more free stimulation."

Of modern authorities Strümpel is the only one who distinctly disbelieves in the use of alcohol in any of the diseases above mentioned. Even in pneumonia he does not give alcohol except to patients who have become habituated to it before their illness. "We could never satisfy ourselves," he says, "of the often praised action of alcohol on the heart."

Between these two extremes—the routine use, and the absolute avoidance of alcohol in continued fevers—falls the practise of most of us. The usual opinion is that there are certain indications for the use of alcohol in such cases. What we want to bring out in this paper is that many of us are not as clear or as consistent as we ought to be as to just what we expect to gain by stimulation, and as to the reasons for its use in any particular case.

For example, Cabot thinks there is a fairly wide-spread impression among us that alcohol is itself directly inimical to the toxemia which forms the chief danger in acute infections.

Does this impression rest on any satisfactory experimental basis? The writer has never heard of any such. If it could be shown that the use of alcohol increases the germicidal power of the blood, or of the power of the kidney to excrete toxins or precipitate them in the stomach, we should have a satisfactory reason for giving stimulants, as, for instance, most surgeons now give them in septic cases. There would then be good reason for giving stimulants even if they did not improve the heart's action, the digestion, or any other function of the organism. But, so far as known, there is no experimental evidence that the ingestion of alcohol does increase the antitoxic or bactericidal power of the blood, and there is a certain amount of evidence that so far from increasing the ability of the kidneys to excrete toxic products, alcohol has just the reverse effect. We know that alcohol precipitates snake poison in the stomach where it is excreted, but the writer is not aware of such evidence as regards other toxins. He has heard surgeons and others express a belief that it is no harm to stimulate a septic patient even to the point of making him drunk. As to the wisdom of this course the following experiments are relevant:

1. In the *Comptes de la Société de Biologie*

for 1895 (p. 51), Wurtz and Hudels report experiments on fourteen rabbits and seven guinea-pigs, which were given enough alcohol to make them drunk, and then killed, and their blood examined for bacteria. Over one-half the cases showed the presence in their blood of streptococci, colon bacilli, proteus vulgaris, and various anaerobic organisms.

The control animals, to whom the same dose of alcohol had been given, recovered from its effects, showing that the inroad of bacteria in the autopsied cases was not due to any moribund condition from a lethal dose. They were simply drunk and not dangerously poisoned.

If large quantities of alcohol make bacteria enter the blood in animals, why may it not have a similar effect in sick men? Are we likely, then, to benefit a septic patient by making him drunk?

2. Again, take the question of the excretion of toxins by the kidney. It is well known that in most acute infectious diseases, where the patient is doing well, the urinary toxicity is greatly increased, and this is taken to show that the kidneys are aiding in the fight against the disease by excreting the poisons produced by the infectious agent. Kellogg found that the use of alcohol, so far from increasing the urinary toxicity, greatly decreased it. The writer does not vouch for these results, but offers them for what they are worth. There is no doubt that cold bathing in typhoid does increase the urinary toxicity, as has been shown by Roque and Weill.

Apart from the question of the action of alcohol as an antitoxic or bactericidal agent, the following indications for using it in continued fevers are stated in most text-books:

1. Persons long addicted to its use should not be deprived of it in febrile diseases. On this point there seems to be no disagreement.

2. It may be the only form of food which the patient can and will take.

3. Sudden collapse or great prostration from any cause is generally agreed to call for stimulation.

As to these three indications the writer thinks most physicians would agree. But the great majority of writers go further and recommend that:

4. Any serious complication, such as hemorrhage or perforation in typhoid, severe nervous symptoms like delirium—in fact, anything that shows an especially severe

case—should be considered an indication for stimulation.

5. Persons over forty years of age and persons of feeble constitution are believed by most writers to need stimulation in case they catch any severe infectious disease, like typhoid or pneumonia.

On the other hand, Ringer's views on the use of alcoholic stimulants are copied into many text-books, and they conflict with the belief that a severe or complicated case or one occurring in a feeble person should always be treated with stimulants. Ringer says in substance: "If after the use of alcohol we see the pulse become slower, the skin and tongue moister, sleep better, nervous symptoms less marked, breathing less hurried, food better taken—the alcohol is doing good. Not otherwise."

Now, if this be true, we cannot say that severe or debilitated cases need stimulation, but only that they may need it, or that they need it in case it turns out to do them good. Now this is where the writer thinks many of us err. We do not watch the action of alcohol as we do that of other drugs which may do harm. We often give it as we might give malt, and not as we give digitalis or calomel. When we give a diaphoretic or a purgative, we look for its definite action; if we do not get it after a sufficient dose, we do not continue the drug. But the writer has repeatedly seen alcohol given whether any good effects appeared or not, with a general idea that it must be doing good since it is a food and a stimulant. But in many cases it does not act as a stimulant—in any dose; does not slow the pulse, moisten the tongue, or decrease restlessness and delirium; and other food is so well taken that it is not needed as a food,—yet we go on using it under a vague impression that it helps the patient to fight his disease, makes him feel better perhaps, and at any rate cannot do any harm. Cabot enters a protest against such treatment, which he sees constantly administered in our hospitals and elsewhere. He believes, with Pepper, that the symptoms of alcoholic poisoning are "often mistaken for advancing debility and regarded as an indication for still more free stimulation."

There is a pernicious idea which has been repeatedly advanced by prominent physicians, that if the smell of alcohol is not present on the breath the amount of alcohol given must be doing good. But alcohol is not excreted solely by the lungs, and its ill effects can be shown, as Ringer and others have pointed

out, by other symptoms besides the smell of the breath.

It seems to the writer that what is most needed at the present time in order to improve our therapeutic use of alcohol is more experimental evidence on two points: (1) The effects of alcohol on the toxicity of the urine, and on the antitoxic and bactericidal power of the blood; (2) the effects of treating acute infectious diseases without alcohol.

The writer has often thought that therapeutic progress is seriously hindered by the fact that every case is given the best treatment known. He accounts for the long persistence of the bleeding treatment by supposing that since every patient was given the best treatment known—namely, bleeding—physicians had no chance to see how the disease would do without the treatment. Similarly, at the present day, so few of us have ever seen a severe case of sepsis or pneumonia treated without alcohol that it is very possible that some of us may attribute to the disease (as Pepper says) symptoms really due to the treatment. The writer has often been struck with the close resemblance between delirium tremens and some of the symptoms of severe febrile cases treated with the best known alcoholic stimulation.

In 1864 A. L. Loomis treated 600 cases of typhus fever without alcoholic stimulants as an experiment. His mortality record was six per cent.; the previous record in the same epidemic in cases treated with stimulants was twenty-two per cent.

N. S. Davis claims to have treated 1000 cases of typhoid fever without alcoholic stimulation, with a mortality of five per cent.

Kellogg, of Battle Creek, states that he has treated eighty-two cases of pneumonia without alcohol, with a mortality of 4.9 per cent.

The author states that he is aware that statistics can lie, and he is not prepared to say, as Strümpel does, that we should give up alcoholic stimulation in fevers; but he does think that we need a broader experimental basis for our practise of and use of stimulants simply because the case appears to be very severe.

In conclusion he believes that alcohol, like other drugs, should be given to accomplish a definite therapeutic result, and if no signs of that result appear the drug should be withdrawn. Experimental evidence is much needed: (a) As to the effects of alcohol on the toxicity of the urine and the bactericidal power of the blood; (b) as to the result of treating acute febrile diseases without alcohol.

*POTASSIUM CHLORATE POISONING.*

P. JACOB (*Berliner Klinische Wochenschrift*, July 5, 1897) records a fatal case. A patient aged thirty-nine was admitted almost comatose, thirty hours after taking about twenty-five grammes of this drug. The face, ears, fingers and toes were blue. There was much dyspnea, and the pulse was thready. Camphor injections were given, and the stomach washed out with water to which sodium bicarbonate had been added. Venesection was performed on two occasions, and 1000 cubic centimeters normal saline solution was infused. Some considerable improvement was noted on the third day. Fifty cubic centimeters urine of a brown-red color was drawn off, and was found to contain both albumen and blood. From the time of admission a marked methemoglobinuria existed, but after the second day a distinct hemoglobinuria. Six days after taking the poison the patient died suddenly and unexpectedly. Only an incomplete necropsy could be made fifty hours after death. The spleen was enlarged, the lungs deeply engorged with blood, and the kidneys swollen. The changes in the blood were interesting. There was a very marked leucocytosis at first. The red cells were paler than usual, and showed marked degenerative changes. The leucocytosis gradually diminished, so that on the day of death the leucocytes did not exceed the normal, but the changes in the red cells gradually increased, so that eventually hardly a normally colored red cell was to be seen. The red cells which escaped the destructive changes nearly all showed poikilocytosis. The author's observations thus agree with those of Riess and Krönig. The hyperleucocytosis is a reactive change. The author would go so far as to say that the use of potassium chlorate, even as a gargle, should be entirely given up and forbidden. Even in small doses it is a severe blood poison, and may produce a hemorrhagic nephritis.—*British Medical Journal*, Nov. 20, 1897.

*CHLOROFORM AND ETHER.*

In the *Boston Medical and Surgical Journal* of December 23, 1897, Dr. KEEFE contributes an able, practical paper on these anesthetics. He thinks a careful review of this subject would enable us to draw the following conclusions:

1. Statistics are at present of little or no value in deciding as to the relative danger of

chloroform and ether, because, as the author has shown in a previous paper, the deaths under both bear a lower ratio to the inhalations than the sudden deaths in those who had not taken an anesthetic bear to the population.

2. Ether is a safer anesthetic in proportion as it is weaker, bearing a relation to chloroform of about one to five. The danger of chloroform is not so much inherent to it *per se* as to its relative greater strength and the greater care and experience required in its administration. He states that he would trust almost any physician to give ether, but not one in twenty to administer chloroform; just as any child can handle a toy engine, but not every man can handle a steam locomotive.

3. The difficulties with both chloroform and ether in the presoporose stages are, in nearly all cases, due to respiratory spasm, and the consequent heightened arterial tension and venous congestion. This is very likely to be unduly prominent in the brain on account of recumbency, and the few muscular fibers in its vessels in comparison to the general circulatory system. For this reason it is neither so well able to resist the onset by contracting its arteries nor to empty itself.

4. In the post-stertorous stage, after long application, the death is most likely to be caused by anemia and cardiac paralysis.

5. The best medicine for the first kind of interference is amyl nitrite, belladonna, and strychnine; and for the second, digitalis and strychnine, supplemented by electricity and all the other movements recommended by Dr. Hill.

6. Were the writer asked for the greatest advantages ether has over chloroform he would say: The anesthesia of ether is loud and lifelike, hence any accident or interference is noticeable on the instant; whereas chloroform produces so quiet a sleep that the patient seems on the border-land of the grave, and there is not so distinct a warning of accident until too late; consequently it requires a degree of vigilance and attention that few possess. Moreover, the administrator, if conscientious, feels that he assumes a greater responsibility than the operator.

7. Chloroform is a more satisfactory anesthetic for short operations, where the sopor need not be renewed or continued; for obstetrics, where the anesthesia need not be complete; and for patients with lung or kidney disease, and children.

8. Ether is pleasanter and safer (for the vast majority of physicians) to continue the

anesthetic state after having been induced by chloroform.

9. He does not believe there is any well marked difference in the manner of death under ether or chloroform; the stage of the anesthesia has more to do with it than the agent.

#### THE DIAGNOSIS AND TREATMENT OF HEMATEMESIS.

Professor ROBIN, of Paris, in an article published in the *Medical Press and Circular* of December 22, 1897, discusses this interesting and important subject. He tells us that in simple ulcer of the stomach, which might well be called *ulcus acidum*, the ulceration, and therefore the hematemesis also, has been preceded by a period of gastric hypersthenia. The preventive treatment of hematemesis from this cause will, therefore, consist first of all in the treatment of the gastric hypersthenia. Next to this, we must deal with the ulcer itself. The prehemorrhagic period is generally of sufficient duration to give one time for intervention. According to Cruveilhier's law, all solid food must be given up, and the absolute milk diet must constitute the basis of the treatment; milk in such cases is not only a harmless article of food, but also helps in the cure, tending to neutralize the acids and exerting also a sedative action on the hydrochloric acid secretion. The guiding rules of this milk diet are simple enough. The patient should take at least three quarts of milk a day, in five portions, at regular intervals, so as not to overstimulate the digestive functions. The milk should be taken cold, and preferably unboiled (if it be possible to procure a perfectly healthy milk); it should be mixed with a little lime water. This milk diet ought to be continued for six months at least, even when no further morbid symptoms supervene.

Several objections have been urged against the milk diet. It has been alleged to dilate the stomach, already rendered prone to dilate by the disease itself, but true dilatation in such cases is quite exceptional, and is more apparent than real; there is, in fact, only some distention due to spasm of the pylorus, this giving rise, by reflex action, to acid hypersecretion. The milk diet is in such cases the treatment of election; it does not increase the distention of the stomach, but tends to diminish it.

Von Leube recommends a different mode of treatment. The first indication, in his opinion, is to wash out the stomach, in order

to free it entirely from all fermenting matter, which is apt to exert a deleterious influence on the future evolution of the ulcer; next he injects an alkaline solution, in order to neutralize the contents of the stomach; lastly, he pours in an emulsion of bismuth. The bismuth is deposited on the walls of the stomach, constituting a regular dressing of the ulcer, which thus tends to heal up. Von Leube's method is certainly rational and may be worth a trial. The writer, however, objects to the introduction of a tube into an ulcerated stomach, this being an essentially risky and dangerous maneuver, apt to be followed by severe hemorrhage. This assertion is not theoretical. Cornillon and Duguet have published some well known cases in which the introduction of the tube was followed by fatal hemorrhage, and it is, after all, quite as easy to swallow the bismuth, which may prove useful when associated with an absolute milk diet.

The following powder will act at the same time on the ulcer, on the hyperacidity, and on the pain:

- ℞ Magnesiae, 20 grains;  
Bismuth subnitratiss,  
Sodii bicarbonatis, of each 15 grains;  
Pulv. opii, 1 grain;  
Sacchari lactis, 1 grain.

For one powder. One or two powders a day, in one dose, in a little water.

Great care must be taken to keep the bowels open; calomel and jalap are useful for this purpose.

When we are called to a patient who is vomiting blood, we must at once remove the clothes, put him to bed with his head low, lying on his back, and recommend him to remain perfectly quiet. Inject hypodermically some ergotin into the skin over the epigastrium, and apply ice to the same region. Give from one to two grains of extract of opium, and then, every two hours, one tablespoonful of this mixture:

- ℞ Ext. ergot fl., f 3 iij;  
Acid gallici, gr. xxx;  
Ext. opii fl., ℥ xl;  
Syrup terebinth, f 3 j;  
Aqueæ aurant. flor., q. s. ad f 3 vj.

Mix.

Continue the use of this mixture until the hemorrhage has entirely ceased.

Various complications may arise which will have to be dealt with.

In the event of syncope, have recourse to the ordinary means: horizontal position, head low, amyl nitrite, injections of ether or of Hoffmann's anodyne, flagellation, mustard

plasters to the legs; as a last resource, transfusion, which sometimes has a wonderful effect.

When the patient is in danger of suffocation from the passage of blood into the larynx, introduce your fingers into his mouth and practise rhythmical traction on the tongue.

When there are symptoms of acute peritonitis, possibly indicative of perforation, prescribe absolute immobility, extract of opium internally, and injections of morphine over the epigastrium.

The patient may suffer from incoercible vomiting. This must be stopped as rapidly as possible, seeing that it keeps up, or even increases, the hemorrhage. In addition to the classical treatment of this complication, you may prescribe:

- ℞ Picrotoxin,  
Morphine hydrochloratis, each gr. j;  
Atropinæ sulphatis, gr. 1-5;  
Ergotinæ, gr. xv;  
Aque dest., f 3 iv;  
Spt. vini rectificati, q. s. to dissolve.

Mix. From eight to ten drops in a little water.

In addition to these accidents, the hematemeses may be followed by others. The blood which has not been vomited may undergo putrid fermentation either in the stomach or in the intestine, all the more easily in the latter organ if the patient be constipated. This constitutes a serious risk of autointoxication; the existence of this complication may be inferred from a fetid odor of the last-vomited matter and also of the breath of the patient. This condition is effectually dealt with by clearing out the bowels, both by means of enemata (with glycerin, or with a tablespoonful of sodium hypochlorite) and purgatives.

When the patient has survived the hematemeses and the immediate and more remote complications, he still remains, as a rule, markedly anemic and weak. The normal treatment of this condition by means of more strengthening food being impossible, or at any rate contraindicated by the very cause which brought it on, it will be necessary to have recourse to medicinal agents.

In such a case the author prefers the perchloride of iron, which is both hemostatic and tonic; the other salts of iron are apt to determine congestion and thus favor a recurrence of the hemorrhage. The iron should, of course, not be administered until the patient has ceased taking gallic acid.

In eight or ten days stop the perchloride, as it may prove irritating to the mucous

membrane if continued too long. It may then be replaced by the protochloride (which is probably transformed into perchloride in the stomach) in association with cinchona and rhubarb, as follows:

- ℞ Ferri protochloridi,  
Extract. cinchonæ fl., of each gr. ij;  
Pulv. rhei, gr. j.

Mix. For one pill.

The patient to take one of the pills with each of the two principal meals.

#### NOTES ON THE TREATMENT OF TYPHOID FEVER.

In an article in the *Philadelphia Polyclinic* of December 4, 1897, with the above heading S. SOLIS-COHEN tells us that should a routine treatment of typhoid fever have to be pursued, there is no question that least harm and most good will result from the employment of systematic bathing in cold water after the method of Brand. But this treatment is not always necessary, nor is every case bathed best treated by undeviating adherence to Brand's method. As the writer had the pleasure of advocating the Brand system and of employing it according to his then limited facilities before many of its present advocates had seen fit to forego the use of antipyrin and similar methods, he states that he does not hesitate to place himself on record against the extreme views now given vogue. Unquestionably water, and often cold water, is the one agent of greatest utility in the management of enteric fever. Water should be used freely in every case, and should be used both internally and externally. In severe cases, or in cases that promise to be severe, if seen before the tenth day, systematic plunging in cold water should be instituted at once; and the now classic directions of Brand should be followed with reasonable strictness. The inexperienced will do better by following them to the letter, than by attempting modification. The experienced will adapt his directions to circumstances. Between the tenth and twelfth days it is doubtful whether plunging should be begun. After the twelfth day the inexperienced should never begin plunging. Plunging begun earlier will of course be continued or discontinued according to circumstances. When plunging is not well borne, or when for any reason it has not been instituted, frequent cold or cool sponging should be carried out. This is partly to reduce temperature, but largely, like the bathing, to promote general metabolism,

to stimulate excretion, and to keep up the tone of the peripheral vessels, which Dr. Woods Hutchinson so aptly calls "the skin heart."

The temperature index may serve as a guide to sponging as to bathing. When the temperature in the mouth does not exceed 103° F., the patient may be sponged every second or third hour with water at a temperature of 70° F., which may, if necessary, be gradually reduced to 50° F., in the course of ten to twenty minutes. When the temperature exceeds 103° F., sponging must be done at least every second hour, and the temperature of the water be correspondingly lowered—60° or even 50° to begin with, and rapid reduction to 32°, being useful at times. The effects on temperature, pulse, respiration, excretion, sleep and general comfort must be the guides as to the time, temperature and other details of the application; as a rule, patients should be allowed to sleep undisturbed for about four hours, even when applications are being made every second hour during wakefulness.

To reduce temperature, should this be thought necessary, and to prevent or control tympanites or hemorrhage, the continuous application of ice to the abdomen—usually over the right iliac fossa—is useful. Sometimes it is advisable to intermit the use of ice, or to alternate the application of ice to the head and abdomen. In cases of severe nervous and cerebral symptoms or very high temperature, there may be continuous application of ice to both head and abdomen. McCormick has had excellent success with the use of guaiacol externally.

The patient should be encouraged to drink cool water freely and frequently. The temperature should be that found to be most refreshing. Ice water should not be used.

Internal medication is useful. The bowels should be cleansed by enema on admission (unless after the tenth day), after which, according to circumstances, a few small doses or one large dose of calomel should be given. After the "calomel stool," intestinal disinfectants may be usefully employed. These may not kill Eberth's bacillus, nor neutralize its toxins, nor chase after it into the spleen or cerebrum; but they do render the patient's intestine a less favorable breeding ground for this organism and its many named and unnamed congeners; they do diminish the formation and hence the absorption of various named and unnamed toxins; they do render the course of the case less severe.

During the second week strychnine is useful in small doses, say  $\frac{1}{100}$  to  $\frac{1}{80}$  grain every second to sixth hour. During the third week it may be increased to  $\frac{1}{4}$  grain every third hour, if need be. Alcohol is rarely necessary before the third week, and often unnecessary throughout. In case of high fever, however, it sometimes saves combustion of tissue, and when the Brand system is carried out a little red wine (1½ ounces) should be given before and after each bath.

Concerning complications the writer refers to hemorrhage only. He believes opium to be our best remedy. With this, continuous application of cold to the abdomen by means of the ice-bag and the use of turpentine may be combined. Ergot is useless. Calcium chloride may possibly be useful. The writer thinks it has been useful in his hands, but he has also seen it fail to do any good. McCormick advises strongly against the use of opium in hemorrhage, and warmly advocates flushing of the colon with cold water. His results have been good, but he hesitates to abandon the classic plan, which has hitherto yielded good results in his own practise.

#### *USE DIPHTHERIA ANTITOXIN PROMPTLY AND BOLDLY.*

The *Philadelphia Polyclinic* has from time to time given what is deemed conservative advice in regard to the employment of antitoxic serum in the treatment of diphtheria. While viewing the new treatment favorably, it urged caution at first in the selection of cases, until the dangers and limitations of the remedy were known. It then, as evidence accumulated, pronounced in favor of the early and sufficient administration of the antitoxin in cases of determinate diagnosis. As the result of increasing experience and observation, as well as from study of published reports, it is now prepared to occupy and defend the most advanced position, namely, that without waiting for bacteriologic confirmation of diagnosis, every patient who presents clinical evidence of diphtheria should at once receive a "curative dose" of serum, and all children of the household should be immunized by the same agent. Adults should be immunized if likely to be much exposed, and may be immunized, if they desire it, even if not specially exposed.

Of drugs of this class, one may use guaiacol or its combinations, of which the writer prefers the carbonate; phenyl salicylate (salol); betanaphthol or its benzoyl compound (ben-



zonaphthol); creosote or its carbonate (creosotal); carbolic acid and iodine; and the like. The writer usually employs salol or guaiacol carbonate, in doses of about five grains every second to fourth hour; more recently he has used benzonaphthol in doses of ten or fifteen grains. If diarrhea is troublesome, bismuth salicylate may be used with the more powerful antiseptic. If constipation be a feature of the case, an enema should be used every forty-eight hours, except during the period when ulceration is at its height, say from the twelfth to the sixteenth day, when the bowel should be let alone.

If, notwithstanding the free use of water, the urine is not excreted in sufficient quantity (that is, if it be less than thirty ounces in a day) some mild diuretic, as solution of ammonium acetate, or sweet spirit of niter, or infusion of buchu, should be given. This is rarely necessary, as the water drunk is usually an efficient diuretic, and the stimulation of the skin likewise assists excretion.

When the tongue is dry, harsh, fissured, covered with brownish fur, turpentine is useful beyond doubt. Sufficient must be given, about fifteen drops in emulsion or syrup of acacia, every second to fourth hour. If any sign of renal irritation develops, turpentine must be abandoned. Cohen has, however, never seen it do harm, and has seen it do good too often to be laughed out of its use. It also serves well in cases of tympanites or hemorrhage.

It is important to have a good syringe. It is of the highest importance to have a trustworthy serum, of as high potency as possible, so that a dose small in bulk shall be large in antitoxic units. The serums made by certain American houses are fully equal to the imported preparations, if, indeed, they are not superior. They are, in addition, more readily obtained and are likely to be more recent. No preparation that is not standardized should be employed, unless it is the only one available; and in every case the higher the number of antitoxic units per cubic centimeter the easier it is to give an efficient dose.

The failures that occurred in the early days of serum therapy in diphtheria are to be attributed to tardy and half-hearted employment of the remedy, to insufficient dosage, and to the low potency of the commercial serums, requiring a bulky injection, difficult and painful to administer.

For a child of three years, the initial dose in a tonsillar case of moderate severity seen early should be 1000 to 1500 units; in nasal

or laryngeal cases, or in cases in which the lower pharynx is invaded, or severe cases of any variety, the dose should be 2000 units; and in any case first seen as late as the fourth day, the dose should be 2000 to 3000 units. The injection should be repeated in from twelve to twenty-four hours, according to circumstances. For immunizing, 500 units should be the dose; or if infection and incubation be suspected, the curative dose of 1000 units should be given at once.

With antitoxin properly and promptly used, the throat being kept clean by applications not too frequently repeated—of which Loeffler's solution (toluol and ferric chloride) is said by competent observers to be the best—pharyngeal diphtheria is robbed of the greater part of its terrors; while intubation in laryngeal diphtheria has a far more favorable prognosis, the deaths now being fewer than were the recoveries previous to the introduction of antitoxin. What is needed, however, is promptness and courage in the use of the remedy. If *The Polyclinic* has by its former caution contributed in any degree to the hesitation with which some members of the profession resort to the use of antitoxin, we trust that this article will make amends and inspire the doubters with decision and boldness.—*The Polyclinic*, Dec. 11, 1897.

#### THE ERYSIPELAS-TOXIN TREATMENT OF SARCOMA.

The editorial department of the *New York Medical Journal* of December 4, 1897, tells us that it is evident the last word was not spoken on the subject of Dr. Coley's method of treating sarcoma when, some months ago, it was publicly discountenanced by the New York Surgical Society. As to any effect that the Society's decision may have had in the way of deterring surgeons from further resort to the treatment, it seems to have been felt wholly at home, for every now and then we meet with encouraging reports of trials of the method in foreign countries. The latest of these that has come to our notice was made by Mr. Mansell Moullin at a meeting of the Medical Society of London held on November 8, a report of which is published in the *British Medical Journal* of November 13.

Mr. Moullin showed two patients on whom he had employed the treatment for tumors suspected to be sarcomatous. One was a man twenty-eight years old, who was admitted into a hospital in November, 1895, with

a swelling in the groin of four weeks' standing. It occupied the right iliac fossa and dipped deep on the inner surface of the pubic bone. It was firm, not fluctuating, rather tender, and situated beneath the iliac vessels. Near it there were four enlarged glands. The patient appeared ill, and his temperature is described as having been irregular. On December 4 half a minim of Coley's fluid was injected, and the next morning the man's temperature had gone up to 100.8° F. That afternoon an injection of a minim was given, but without result. On the 6th and 7th, in the evening, the temperature was 102°. After that the injections were given every second or third day, and the amount of fluid injected at a time was increased gradually to six minims. Some of them were followed by rigors, and others were not. The treatment was continued until the end of February, when it had ceased to have any effect. Mr. Moullin thinks it proved beneficial, for the man's weight rose from a hundred and thirty-eight to a hundred and forty-five pounds. At first the tumor increased rapidly in size, and the skin over it grew red and tender; but about the middle of January it was noticed that the tumor was smaller and that the enlarged glands were less noticeable. At the end of the month it became larger again, and had all the appearances of being acutely inflamed. By the beginning of March it had shrunk and grown hard and irregular in outline, and there was very little of it to be felt. Since that time, for a period of twenty months, there had been hardly any change in it.

The other patient was a man forty-eight years old, who was admitted on November 10, 1896, with an abdominal tumor which is described as a large irregular swelling, elastic, hard, not fluctuating, not connected with the skin or muscles, and occupying the left flank. It descended into the iliac fossa below and extended under the false ribs above, while in front it reached nearly to the middle line. There was no glandular enlargement or pain. The tumor increased rapidly in size. On December 14 half a minim of Coley's fluid was injected, and the man's temperature rose to 100°. The injections were given every two or three days, and the amount injected was increased gradually to six minims. On the 19th there was a rigor after an injection of four minims. On January 24 there was another rigor after an injection of seven minims, and the temperature rose to 103.6° the next day. It was above normal for a fort-

night, and no further injections were given. The account of the case concludes as follows: "The tumor continued to grow until it pressed upon the colon and threatened obstruction. In January it became acutely inflamed, but this subsided, and the tumor began to shrink until it could scarcely be felt. The patient left the hospital in March stouter and stronger than on admission."

Mr. Moullin conceded that it was impossible to be sure that these tumors were sarcomatous, but he declared that he himself had no doubt of it and said it was difficult to imagine what else they could be. Certainly, he added, they were not gummata, and there was nothing to suggest an inflammatory origin. He conceded also that the use of the remedy was attended with some danger, and stated that another patient of his, who was in a weak condition, had died shortly after the second injection. He said he had employed the treatment in nine cases of sarcoma, and one death had occurred. One patient had declined further treatment after two or three injections, and two patients were still under treatment. In three cases the growths had disappeared, and in the others, although the tumors had not disappeared, they had become greatly modified and had diminished in size for a time. He confessed he was unable to decide whether the fluid acted as a specific or merely by provoking inflammation. He recalled that Dr. Coley had published accounts of twenty cases, well authenticated, in which the tumors had disappeared and the patients had remained free from recurrence.

Mr. Watson Cheyne, who remarked that Dr. Coley's statements could be relied upon implicitly, said that he had employed the method in two cases, in one of which the growth had been recognized to be sarcomatous. He called attention to the fact that in all Dr. Coley's cases the tumors had been of the spindle-celled variety. Dr. Colman alluded to the results of the post-mortem examinations of two persons who, after having been subjected to the treatment, had died of some intercurrent disease. In one there had been found a large area of softening in the interior of the tumor, and in the other cicatrices had been found which probably marked the site of past inflammation. Mr. Moullin said he had never had an opportunity of examining a tumor after the treatment, but in a case that was still under his observation a central soft portion had sloughed out since the injections had been begun, without hemorrhage from subjacent vessels.

In view of all that has been published in the United States and other countries concerning Dr. Coley's method of treating sarcoma, we are probably not warranted in supposing that, even with any modifications of it that may hereafter be devised, it will be accepted finally as the most trustworthy, for the great strides made in the antitoxin treatment of disease during the last few years justify, we think, the hope and expectation that the bacteriologist will yet provide us with a remedy so efficient that it will cease to be thought of any consequence whether a malignant growth is susceptible of excision or not. Still, as constituting perhaps the best treatment thus far proposed for cases of sarcoma in which the removal of the tumor would be too perilous, the erysipelas-toxin treatment deserves, we are inclined to think, much further trial pending the discovery of such a remedy as we have alluded to. At all events, taking into account the favorable impression it has made on some well known surgeons in France and England, we trust it will not be dropped summarily in the land of its originator.

#### THE TREATMENT OF ABORTION.

In an interesting letter to the editor of the *Medical News* under date of November 20, 1897 (*Medical News*, Nov. 27, 1897), Dr. PAUL F. MUNDE tells us that he has read with interest a recent article on "The Treatment of Abortion" and begs to be allowed to offer several criticisms:

1. The author very properly pronounces Thomas' small dull-wire curette as useless for the purpose of emptying the uterus during an abortion, and declares his (Thomas') "large dull-wire curette, with an opening admitting the tip of a forefinger, an admirable instrument for the purpose, formidable as it appears."

Munde thinks the author is in error in calling Thomas' large dull-wire curette a "formidable instrument." The only two dull-wire curettes which go by the name of Dr. Thomas are the small one, which is used for removing intra-uterine vegetations and is useless in abortion, and a somewhat larger one, which he has employed for years in abortions under two months, where others use Recamier's or Sims' curette or Simon's sharp spoon. Munde has never found it necessary to employ a sharp curette in early abortions, or even later, unless there had been an acute endometritis with inflammatory adhesion of the placenta.

The curette which the author calls a "formidable instrument" can be no other than the large dull curette, attached to a long, stout shank and handle, which Munde first introduced to the profession in 1883 (see *American Journal of Obstetrics*, February, 1883) in an article on "The Immediate Removal of the Secundines after Abortion" (and which is mentioned and pictured again in his "Report of the Gynecological Service of Mt. Sinai Hospital," *American Journal of Obstetrics*, October, November, and December, 1895), and has been sold by instrument-makers under Munde's name for years.

There are two shapes of Munde's placental curette, one round and the other oval, the latter being especially designed for use when the cervical canal is long and not fully dilated. After the second month both can usually be inserted without difficulty through a fully dilated canal. A large flat forceps for the removal of the detached decidua accompanies the curettes. The curettes may be used whenever the canal is sufficiently dilated to admit the index-finger.

2. The author criticized fails to lay down, as a condition indispensable and invariable for the efficient and thorough use of the curette after abortion, that the uterine canal should be sufficiently dilated to permit the index-finger to explore the uterine cavity to the fundus, in order not only to determine the quantity and location of the retained secundines, but also to enable the operator to be perfectly sure that the cavity has been entirely emptied when the operation is completed.

To trust to the information on this point imparted by the curette alone, even in the hands of the most expert operator, is notoriously unsafe.

3. The same author has omitted to mention that at times great assistance is afforded to the cervical dilators which he mentions by gently nicking the lips of both the external and internal os with a straight, blunt-pointed knife, especially when the edges of the external os are rigid and cicatricial as occasionally happens after a trachelorrhaphy.

Munde has found the index-finger, assisted by counter-pressure over the fundus with the other hand, as good a dilator as any of the cones or olives, provided it was possible to insert its tip ever so little into the internal os. In incomplete abortion, when any considerable portion of the secundines is retained this can usually be easily done.

4. Munde cannot agree with this author's

advice and practise to tampon either the uterus or vagina after emptying the former of the products of conception. An empty uterus after abortion always contracts, and all hemorrhage from its cavity ceases. A failure to contract at that time is an exception. To pack the uterus is therefore unnecessary, and rather tends to interfere with contraction and involution than to aid them. And why pack the vagina? He usually employs a hot sterilized or carbolized intra-uterine douche after emptying an aborting uterus, and he can scarcely recollect a case where prompt contraction and cessation of bleeding did not take place. Only in a woman very much exhausted from hemorrhage might it be advisable to pack the empty uterus after abortion with iodoform gauze, or better sterilized gauze, in order to save her even the few drops of blood which would ooze away during the first day or two, until she has rallied. At least this is Munde's opinion, and has been his practise for many years, and he has no reason to regret or change it. Of course, if the object of packing the uterus is to influence a septic condition of the endometrium, the case is different. But then it would seem to him that gauze soaked in peroxide of hydrogen, or kept moist with the forty-per-cent. dilution of alcohol recently recommended by Dr. Ill, must be preferable to iodoform gauze as a uterine packing.

#### ANESTHETICS.

In the *British Medical Journal* of November 20, 1897, WALLER contributes an important paper on anesthetics. His opinion is altogether adverse to chloroform, and he believes chloroform is seven times as powerful as ether, and therefore more dangerous. He is greatly astonished that in the face of the clinical experience of the past fifty years chloroform should still be frequently employed in minor surgery, though he is well aware of the superior convenience of chloroform over ether, and that there are cases and circumstances rendering its use justifiably preferable to that of ether. But he believes that the proportion of such cases is very small in comparison with the actual number of cases in which it is habitually employed.

With regard to ether, Waller thinks an exaggerated estimate has been given of the inconvenience of administration, of the physiological counter-indications, and of the pathological after-effects.

With reference to the admittedly large

number of deaths by chloroform, there seems to be no escape from the two horns of a dilemma. Such deaths are the result (a) of an agent dangerous under all circumstances, or (b) of an agent dangerous only when unskilfully administered.

(a) If chloroform is dangerous under all circumstances, it may not be employed in minor surgery. Death in this class of cases is therefore unjustifiable, and should be considered as a criminal offense.

(b) If chloroform is dangerous only when unskilfully administered, then again death by chloroform is unjustifiable, and ought to be considered as a criminal offense.

There can be no escape from one or other of these two alternatives. There have been deaths due to careless or to unskilled administration; there have also been deaths in skilled and careful hands. But unless we are to admit that chloroform is a "safe" anesthetic, and any death the result of carelessness or ignorance, we must admit that chloroform, being a potent reagent, is, *ipso facto*, a "dangerous" reagent, to be used only on serious grounds, and not to be employed as a routine drug in all kinds of cases, simply on account of its superior convenience.

#### THE RELATIVE EFFICIENCY OF VARIOUS ANESTHETICS.

The *British Medical Journal* of November 20, 1897, speaks editorially of Waller's paper on anesthetics in which he discusses the relative advantages of ether and chloroform. Dr. Waller's experiments have convinced him that the most satisfactory way of testing the efficiency of anesthetics is to employ freshly prepared nerves, and to cause them to respond to electrical stimuli while subjected to various narcotizing vapors. The method is as beautiful as it is original. Not only is he enabled thus to investigate the anesthesia produced, or, as he terms it, "temporary immobilization," but to ascertain the strength of vapor which kills the nerve and produces "permanent immobilization." Under ordinary physiological conditions the galvanometer reveals the presence of currents in the nerves. The action of narcotics is to send the nerve to sleep, and the absence of the current is proof positive of this anesthetic sleep. Remove the vapor and the nerve recovers itself, and again the nerve currents appear. Now, by testing a number of substances, Dr. Waller has found that while all those which produce anesthesia also

bring about death of the nerve, some are far more deadly than others. Richardson, in his lectures on narcotic vapors, was disposed to regard the chemical and physical properties of narcotics as affording no criteria of their power as anesthetics, but his methods lacked the precision of those now under consideration. The heart is capricious because it is a compound organ with a nerve factor, a muscular factor, and a nerve-cell factor. Dealing with isolated nerve the problem becomes immeasurably simpler, and at the same time the experiments can be kept absolutely under test conditions.

We have hitherto been assured that chloroform killed either by paralyzing respiration through the nervous system, leaving the other tissues severely alone, or brought about death through circulatory failure, due, it may be, to vasomotor dilatation, or through incapacitating the heart. Now we learn that not only does chloroform destroy muscular tissue and narcotize the nervous centers through its influence on the blood, but actually attacks nerve fibrillæ, and destroys their irritability. It is a matter of indifference to "the man in the street," as Dr. Waller points out, whether he is killed through his heart failing or by asphyxia; what interests him most is how he can be saved pain with as little chance of losing his life as his surgeon can conveniently arrange. From this point of view it is somewhat startling to find that dose for dose chloroform is seven times more deadly than ether when tried upon the isolated nerve—that is, upon a highly specialized protoplasm. And what appeals most to the practical man is that these figures show how narrow a margin in the case of chloroform there is between a non-lethal and a lethal dose, while seven times that margin exists when ether is in use. The specific action of nitrous oxide has been asserted by some, but denied by Wood and Cerna and the late Sir George Johnson. Dr. Kemp's careful study confirms the former view, but according to Dr. Waller it is an anesthetic which has little or no action on nervous tissue. Carbonic dioxide, which Snow and Richardson lauded as an anesthetic, is, Dr. Waller finds, a powerful agent to produce "immobilization," thus confirming the assumption of the older observers. But a fact of extreme interest, because unless carefully explained liable to fatal misunderstanding, is Dr. Waller's observation that the presence of carbon dioxide favors anesthesia and lessens its risk. The combination of chloroform and carbonic oxide is not, it must

be distinctly understood, simply chloroform given with very little air. This distinction is made very plain by Dr. Waller himself.

Accepting nerve tissue as a criterion of the vitality of the constituents of the body, these experiments are very striking, and reveal in a clearer light the profoundly powerful character of chloroform.

In the statistics of deaths under these two anesthetics ether stands better than the proportion of seven to one. The proportion in its favor is about thirteen to one; but, as Dr. Waller pointed out, the problem of the action of narcotics on the whole organism, although exemplified tersely by a nerve experiment, is in itself far more complex. It is often stated that the after-effects of ether are far more fatal than those due to chloroform; but no foundation in experiment or statistics exists to prove this, and, as Dr. Waller cogently puts it, the use of chloroform, if it be dangerous under all circumstances, is, unless under exceptional circumstances, unjustifiable; and if it is only dangerous when unskillfully given, its deaths amount to homicide. This is Dr. Waller's chloroform dilemma.

The discussion, in which Professor Richet, Dr. Lawrie, Dr. Shore, Professor Gaskell and Professor Stewart took part, turned mainly upon the oft-debated evidence afforded by cross-circulation experiments, as to whether or not the fall of blood-pressure incident to chloroform narcosis is brought about through depression of the vasomotor center or through weakening of the heart itself. How far such experiments can be accepted as conclusive remains to be seen in the face of so much evidence which has now been accumulated by the researches of MacWilliam, Hare and Thornton, Leonard Hill, and others; it is difficult to exclude the vasomotor center as in some way causative of the fall of blood-pressure under chloroform. The practical fact which stands out in terrible distinction is that deaths under chloroform have not lessened in spite of physiology or Hyderabad Commissions. It is useless to contend that these deaths arise because the physiologists teach dangerous tenets, since the large percentage of persons who give chloroform know little of and probably care less for physiology. It is rather the careless and the overconfident in whose hands such accidents happen, while as a rule it is safer in those of persons who have leisure and training to follow the trend of modern thought and teaching concerning anesthetics.

### THE TREATMENT OF ATROPHIC RHINITIS.

CASSELBERRY, the well known rhinologist of Chicago, writes on atrophic rhinitis in the *New York Medical Journal* of November 20, 1897. He asserts that in looking over the literature of this subject somewhat, we will find that although many drugs have been employed in the treatment of atrophic rhinitis, yet they have nearly all been used upon the general principle of producing what is called by some "stimulation," by others "irritation." These two terms are alike in kind, differing only in degree.

We find that the German school, clinging as usual to their belief that this disease, like all others, is caused by the presence of unusual kinds of bacilli or bacteria in unusual numbers, advocate the use of solutions of bichloride. Koch tells of the great benefit and complete cure in some cases of atrophic rhinitis by the use of a spray of 1 to 4000 bichloride.

Löwenberg always uses antiseptic douches of mercuric bichloride (1 to 4000), having first removed the crusts with warm saline solution.

Thost applies bichloride of mercury in a solution of 1 to 2000 with a camel's-hair brush twice a day. He remarks that this treatment has been in vogue for a number of years and has always produced good results.

Of the Italian school, Cardone (professor at the University at Naples), believing that atrophic changes in the nose are similar to the process of pneumonia and dependent upon the same bacilli, uses the bichloride in a solution of 1 to 2000, giving internally iron and cod-liver oil; and Marano bases the same treatment upon the same belief.

One of our fellows, Dr. Mackenzie, of Baltimore, has made use of a solution of mercury bichloride, two grains to a pint of water, by atomization, and recommends the same as a gargle and nasal wash.

Belfanti says that having used with great benefit the diphtheria antitoxin in ozena, he employed it also in atrophic rhinitis, and to his great astonishment obtained very favorable results. He has not as yet tried the treatment long enough to publish his cases.

Electricity, so highly commended by some physicians, has been used largely by Dr. Shurley, who in 1880 was the first to recommend it, and the treatment has been used to quite a large extent by others. The application of the positive pole of the galvanic current to the back of the neck and the negative

pole to the nostrils to produce stimulation has been the usual method employed by Drs. Shurley, Delavan, Hartman, and others. The exact technique can be found in the Transactions of the American Laryngological Association. Even the faradic current has been used and recommended; also the use of copper electrodes on the principle of electrolysis.

Another method of treatment is that recommended by Gottstein, by which the nasal mucous membrane is stimulated or irritated by the introduction of absorbent cotton into the nostrils, or some form of medicated wool, as recommended by Woakes.

Among the various drugs which have been employed in this way are iodoform, iodol, aristol, salicylic acid, camphor, iodine, perchloride of iron, tannin, alum, rhatany, and opium. Medicated bougies, manufactured with a basis of gelatin and glycerin and medicated with the drugs just mentioned, have been used a good deal in atrophic rhinitis, and this method by which drugs can be kept in contact with the mucous membrane for a long time seems to be a reasonable one. The inhalation of stimulating volatile substances obtained from the essential oils and from cubebs, tar, eucalyptus and thymol has also been largely employed; and we find in the shops a number of varieties of so-called autoinsufflators, by means of which the patient is enabled to blow into his own nostrils the fumes of carbolic acid, menthol, oil of pine, etc.

A somewhat different plan of treatment, but intended to produce proper stimulation and secretion, is called "massage" of the mucous membrane. Laher, of Vienna, says that this method of treatment has given most satisfactory results. The method is employed by wrapping cotton around a probang introduced against the atrophic mucous surface and held in position by the left hand, while regular motion is made by vibrating the left arm with the right hand. The writer states that after a few days normal secretion is established and the crusts become thinner and fewer in number. He believes that this method of treatment will recommend itself very highly to anybody using it.

Demme has found that massage performed after the manner described is made still more efficacious by using a twenty-per-cent. solution of pyoktanin in lanolin. He has succeeded, he says, in every case. Garnault and others have used massage by means of electrical vibrations.

It seems to the author that the use of destructive agents in the treatment of this disease deserves mention only to be censured. It is possible that an obstinate ulceration will require to be cauterized, but it seems a very useless procedure to recommend the galvano-cautery and chromic acid where their use can be indicated only in rare instances, and then should be employed in the most judicious way. If the middle turbinated body needs to be reduced in size or a deflected septum is too prominent, as may be the case in atrophic rhinitis, cutting instruments will accomplish the result desired in a much more reasonable way. We cannot afford to still further devitalize an atrophic septum with a heated electrode.

Many articles have been written on atrophic rhinitis where nothing more is offered in the way of treatment than the spraying of solutions of borax in glycerin, ammonium chloride in glycerin, solutions of chlorate of potassium and of phosphate of sodium and phosphate of ammonium, snuffs of animal or wood charcoal, compounds of honey and terebene, and ointments of creosote. Mather thinks it important to combine opium with his saline douches, and if irritation and headache are produced by the nasal wash, recommends the smoking of a cubeb cigarette.

Struebing affirms that he has used every medication that has ever been recommended, and he has arrived at the conclusion that the nose should be cleaned by instruments because douching is harmful to the ears, and that the only successful plan of treatment is the use of bougies medicated with creolin, or better still, metacresolaristol in one-percent. aqueous solution.

Wendell Phillips recommends an antiseptic solution called baptoline, and also one of acetotartrate of aluminum in water, half a drachm to the ounce.

Several drugs have been employed which deserve rather more attention. One of these is resorcin. Masini, as far back as 1882, was using one-half of one per cent. of resorcin combined with vaselin, applied with the brush. He says the treatment is an ideal one. Other practitioners have used it in solution, and it has been employed quite generally in New York, though the results obtained by its use have not fulfilled expectations.

The use of hydrogen peroxide seemed for a time to promise great amelioration in this disease, and as a germicide and disinfectant

its ability is unquestioned. It is, however, a rather troublesome medication to employ, and in the writer's hands, while it produces cleanliness, is not a useful stimulant, but leaves the mucous membrane quite as dry as ever. In anything like strong solution he has found it quite irritating and apt to produce a sub-acute nasopharyngeal catarrh.

Professor Cozsolino, writing in 1887, says that after cleansing the nostrils, either absolute or diluted ethyl alcohol ( $C_2H_5OH$ ) should be applied on small sponges or on pieces of absorbent cotton. He considers this application as one of the best antiseptics and fulfilling in a remarkable degree the properties of stimulation to the mucous surface of the nose. He used ozone for a time and with some benefit, but the apparatus is complicated, and such remedies are apt to fall into disuse.

#### HOLOCAINE VS. COCAINE.

The *Journal of the American Medical Association* of November 13, 1897, contains an article upon holocaine by the well known ophthalmologist, Dr. Hotz. He tells us that he first tried it on a few normal eyes and on eyes with foreign bodies in the cornea, with the following results: The instillation always caused more or less smarting and burning, which, however, lasted but about half a minute; it also produced considerable redness of the conjunctiva (palpebral and ocular), which persisted during the whole period of anesthesia. Within one and one-half to two minutes complete anesthesia of the cornea was noted; after six minutes the sensibility of the cornea began to return, but a second instillation prolonged the anesthesia for another five minutes; and if then another drop was instilled the anesthesia could again be continued. It would seem, then, that the anesthetic effect of holocaine can be kept up indefinitely by repeating the instillation every five minutes. With cocaine this cannot be done; at least the writer has noticed that if the eye is coming out of the cocaine anesthesia, repeated instillations do not restore the anesthesia; on the contrary, he has often found the eye becoming more sensitive the more cocaine was used. Holocaine does not contract the conjunctival blood-vessels, and therefore causes neither bleaching of the eye nor lessening of the lacrimal secretion nor drying of the corneal epithelium. It does not dilate the pupil and has no effect on the accommodation. On account of these

qualities one would naturally feel inclined to use this new anesthetic in preference to cocaine in all operations on the eye. But a series of comparative tests of the efficiency of the two remedies seemed to show that the anesthetizing effect of cocaine (two-per-cent.) is more thorough and penetrating than that of holocaine (one-per-cent.). The writer had, for instance, two patients with corneal ulcers which required the repeated application of the electro-cautery. He made one application under holocaine anesthesia and the next time cauterized the same eye under cocaine. Both patients, who thought cocaine was used on both occasions, said the first cauterization was decidedly painful, while they did not feel the second one at all. The writer performed an advancement of the externus on the right eye under holocaine and on the left eye of the same patient under cocaine. Complete anesthesia of the conjunctiva was present in both eyes; but the cutting and suturing of the tendon was decidedly painful in the holocainized eye, while scarcely felt in the cocaineized eye.

The most telling illustration of the difference in their penetrating effect was furnished by a case of subconjunctival injections of cyanide of mercury. Several injections had previously been made under cocaine, and the pain following the injections was moderate and never lasted over five to ten minutes. The next injection was made under holocaine and caused the most violent pain, which after twenty minutes showed no sign of letting up in intensity; he then instilled cocaine, and within five minutes the patient was free from pain. One week later this experiment was repeated with the same result.

All these observations seem to show that the effect of holocaine is very quick, but superficial; it is therefore a very useful local anesthetic for the removal of foreign bodies from the cornea, and for operations upon the conjunctiva; but for deeper operations, and especially for those which involve the opening of the globe (iridectomy and cataract extraction), he regards cocaine as the more reliable anesthetic.

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*THE PHYSIOLOGY AND THERAPEUTICS  
OF THE THYROID GLAND AND  
ITS CONGENERS.*

In the *Journal of the American Medical Association* of November 13, 1897, H. G. WELLS concludes a paper on this topic by the following statements:

Put in compact form, the sum total of our knowledge of the thyroid gland amounts to the following, according to the results of the latest investigations:

The thyroid gland is an organ of very variable size and shape, reaching its highest degree of development at about adult life, and decreasing with old age.

It is capable of great hypertrophy, but probably is not capable of more than a slight degree of regeneration.

Its secretion is a colloid material, which is discharged into the general blood-current by way of the lymphatics.

The colloid material contains the active material of the gland, which is a complex but very stable body, called "thyroidin," which contains about ten per cent. of iodine.

This substance either acts as an antitoxin to the products causing autointoxication, or furnishes some substance necessary to tissue metabolism.

Thyroidin is necessary to the animal economy, absence of it in adults producing myxedema; in the new-born, cretinism.

The amount of iodine in the thyroid glands of the inhabitants of any given district varies inversely with the prevalence of goitre in that district.

Thyroid glands of residents of Chicago contain fully four times as much iodine as do glands in the goitrous districts of Germany.

It is probable that glands from the Atlantic coast contain about the same amount of iodine as do the Chicago glands.

Simple parenchymatous goitres contain about the same total amount of iodine as normal glands, but the proportional amount is much smaller. Probably colloid goitres contain the same proportional amount with a very much higher total.

The amount of iodine in the glands of children, from a mere trace at birth, steadily increases until adult years. It then decreases, and in old people again becomes very small.

Therapeutically the thyroid extract is a specific in cretinism and myxedema.

In simple goitre and in obesity the majority of cases are improved or cured.

It seems to have some value in tetany, scleroderma, and arrested growth.

The value in psoriasis and other skin diseases, tuberculosis, insanity, rickets, etc., is doubtful.

It is contraindicated in exophthalmic goi-



tre, heart lesions, albuminuria, and glycosuria. The dose should never be so large as to produce symptoms.

#### *SOME DETAILS IN THE TREATMENT OF PHTHISIS.*

Under this title CROOKSHANK in a lecture reported in the *Clinical Journal* of December 15, 1897, speaks in an interesting way of the treatment of this ever present disease. As he well says, a common but very troublesome occurrence in phthisis is vomiting induced by cough after meals. Nothing relieves this so well as the prescription of:

Liquor strychninæ, ℥ v;  
Bismuth. subnitrat., gr. xx;  
Mucilag. tragacanth., 3 ss;  
Aquæ, ad f 3 j.

To be taken four times a day.

Other varieties of dyspepsia met with are those complicated by diarrhea. If the diarrhea be, as is often the case, merely lenteric, treatment is simple; but if pain and tenderness in the right iliac fossa be present, and ulceration of the bowel probable, relief is not so easily given. Rest, and usually complete rest, should be enforced, although it must always be borne in mind that, if tubercular diarrhea be suddenly checked and the patient confined to bed, the pulmonary disease will make rapid progress. If the pain and tenderness be marked, the right iliac fossa had better be freely painted with tincture of iodine until the skin be broken.

A comfortable pad of gamgee tissue should be worn on the abdomen so as to keep up gentle pressure. The use of cod-liver oil, cinchona or malt should be stopped at once, and the diet modified, so that milk (plain or flavored with rum), kumiss, arrowroot, corn-flour, and Benger's or Mellin's food may form the staple. Solid food, except for a little pounded fish or chicken, is better withheld.

Bismuth is undoubtedly the best drug to give, and its most suitable salts the subnitrate, salicylate, or subgallate, prescribed thus:

Bismuth. salicyl., gr. xx;  
Tinc. opii camphorat., ℥ xx;  
Mucilag. tragacanth., f 3 ss;  
Aquæ camphoræ, q. s. ad f 3 j.

To be taken every four hours if necessary.

If this does not check the diarrhea, fifteen minims of tincture of coto should be added to each dose, or half a grain of cotoin given several times a day in pill. These measures failing, it becomes necessary to give opium

in some combination or other, the most potent being that recommended by Dr. Fowler:

Cupri sulph., gr. ¼;  
Pulv. opii, gr. ¼;  
Ext. gentian, gr. ij.

Make into one pill and give one two or three times a day.

The pill certainly checks the diarrhea very rapidly, but has a tendency to furl the tongue and set up nausea. It is of most use when given occasionally during the continued administration of bismuth.

The relief of constipation is, of course, as important in phthisis as in any other condition. Mercurials and all cathartics are unsuitable; the best preparations are the German licorice powder, the confections of senna and sulphur, mild aloes and belladonna pills, and the combinations of cascara sagrada. They should be given in small doses twice or thrice a day after meals; and not in one large dose at bedtime. If this plan be followed, the dose can be gradually reduced, and the constipation cured and not merely relieved. The following recipe is useful:

Tinc. nucis vomicæ,  
Spt. ammon. aromat.,  
Tinc. belladonnæ,  
Spir. chloroformi,  
Extract cascara sagrada, fluid, of each equal parts.  
Fifteen to thirty drops in water thrice daily after meals.

It is of the greatest importance to carefully examine the teeth in all cases of phthisis, real or suspected. Many cases of indigestion depending on carious teeth have been diagnosed as early phthisis, the suppuration having been free enough to set up mild symptoms of septic absorption, and the mimicry completed by lenteric diarrhea due to the imperfectly masticated food. But in all cases of undoubted phthisis no effort should be spared to have carious stumps extracted, the gums cleansed, and artificial teeth supplied. It is worth noting how few phthisical patients are the possessors of good teeth. As soon as the digestive system has been brought into good order we have to make a choice between certain drugs, valuable both for their general action and their special effect on certain symptoms. The first and best of these is, of course, cod-liver oil. In some cases it cannot be taken; it should be tried in all. It is best given in drachm doses, twice a day, ten minutes after food, and it is best taken from a tumbler between two strata of fresh lemon juice. The dose may be increased if the oil is well borne, though little advantage is gained by heroic dosage, any quantity much above an ounce

daily being passed unabsorbed. And no amount of cod-liver oil that can be absorbed will compensate for a destroyed appetite and nauseated stomach.

The exhibition of gentian and sodium bicarbonate may be continued with advantage while cod-liver oil is given; and should the lemon juice be not acceptable to the patient, the following may be tried:

Ether, f 3 ij;

Cod-liver oil, f 3 v.

Dose, two teaspoonfuls.

A third and very excellent method is to give the oil in small doses combined with one of certain acid mixtures. The whole then forms what Dr. Williams has called an oil sauce. One of the best of these mixtures is made up thus:

Acid. nitrici dil., ℥ xv;

Decoction. cinchonæ, f 3 j.

It sometimes sets up diarrhea, however, and if so one may try:

Liquor strychninæ, ℥ v;

Acid. phosphor. dil., ℥ xv;

Infus. quassinæ, f 3 j.

A third formula is:

Acid. sulphur. dil., ℥ xij;

Tinc. aurant., f 3 ss;

Salicin, gr. iij;

Syr. zingib., 3 ss;

Infus. aurant., f 3 ss.

Many more will be found in Dr. Williams' book.

These mixtures are excellent in themselves, and form very palatable combinations with the oil. They should be dispensed separately from the oil, and the "oil sauce" only mixed at the time of taking.

Half a drachm of cod-liver oil, five minims of compound tincture of gentian, and twenty-five minims of lime-water make an excellent emulsion for the use of children. Every effort should be made to induce the patient to take cod-liver oil, but it sometimes is obstinately rejected. In that case it is better to fall back on the general tonics than to employ any of the so-called substitutes for cod-liver oil; they are all unsatisfactory. Malt has some diastatic value, but often sets up diarrhea, and the latest suggestion—petroleum—has nothing but novelty to recommend it. As a general tonic few mixtures have a higher value than that of nitric acid and cinchona, just mentioned. It is particularly suitable to chronic cases with good digestive powers. Arsenic is of the highest value, especially in cases marked by anemia and tremor. It frequently controls night sweats,

and it is an old clinical observation that if the patient be tired in the forenoon arsenic is indicated. A most convenient way of giving it is as the arsenate of iron, one-eighth grain in pill three times a day. The liquid preparations of iron are badly borne by all tuberculous patients, and do less good than might be expected.

Quinine, although it has little permanent effect on the pyrexia, is best suited to cases with irregular fever. It can be given in five grain doses thrice daily, either in cachet or dissolved in lemon juice with fifteen grains of ammonium carbonate in water, so as to form an effervescing mixture. But the most pleasant way of all is that generally employed in the East, of solution in aromatic sulphuric acid. The combination of two grains of quinine with one of digitalis, to form a pill, is excellent in cases with a small, frequent, and low tension pulse. This pill is, of course, Niemeyer's famous combination, but with the opium omitted, as is best, unless diarrhea be troublesome and depression great. Three or four of these pills may be given every day.

One other drug—guaiacol—is deserving of special mention. Creosote in capsules or dissolved in cod-liver oil is good, but guaiacol is better, and less likely to irritate. Guaiacol carbonate is an agreeable form, of which as much as a drachm can be given daily; but the best formula is:

Guaiacol, ℥ ij-x;

Rectified spirit, f 3 ss;

Water, f 3 ss.

This mixture can be given two or three times a day after food, and seldom disagrees if care be taken to begin with small doses of the guaiacol, gradually increased as toleration is established. The writer has several times seen great improvement follow its use, especially in acute cases. But while these drugs of general value are being given some special symptom is sure to claim attention.

If the night sweats be not checked by acids and quinine, the first thing to be tried should be a glass of port-wine negus, given at bedtime every evening. The patient should be sponged about the same time with vinegar and water, or, if we wish to be elegant, dilute acetic acid and eau de Cologne.

The prescription that is most frequently successful is that of a pill—to be taken in the evening—composed of:

Zinci oxidi, gr. iijss;

Extract belladon., gr. ¼;

Extract gentianæ, q. s.

The dose of the zinc oxide and belladonna may be increased, if needed, or one-eighth grain of morphine acetate substituted for either ingredient, or a pill containing one-sixtieth grain of atropine sulphate can be given. Dr. Brunton recommends the excellent plan of giving at night liquor strychninæ combined with opium, and pills containing hyoscine, hyoscyamine, picrotoxin ( $\frac{1}{4}$  grain), agaricin ( $\frac{1}{12}$  grain), or gelsemine ( $\frac{1}{80}$  grain), sometimes succeed when other drugs have failed. Pilocarpine has been advocated, and the addition of five grains of Dover's powder to the negus is of use, even if it be not agreeable.

At the best our treatment of night sweating is unsatisfactory, and our knowledge of its ultimate pathology not much better. The current explanation scarcely explains why so many patients sweat profusely in the early stage of their disease, when fever is slight, and not in later stages when fever is marked; and the writer cannot see that the sweating of the early stage of phthisis is quite the same as that of the last stage of all.

In this last stage the hectic is as much due to the infection of the cavities by pus cocci as any other cause. In the early stage, before breaking down has commenced, it can only be due to absorbed products of the tubercle bacilli themselves. In the intermediate stages, when products of caseation are being coughed up and streptococcic infection has not yet taken place, absorption of chemical products would naturally be less. The writer is therefore inclined to regard sweating rather as a direct manifestation of toxemia than as due to the nocturnal fall of temperature. The ordinary nocturnal ebb of the body's functions would probably by itself be sufficient to determine the time of the sweating.

Cough being a reflex act designed to remove harmful matter from the air-passages, it follows that a cough checked is not always a cough well treated. But it is nearly always expedient to secure a night's rest by giving, the last thing in the day, a tincture containing morphine. Either of these formulæ will be found useful:

Liquor morphinæ acetatis,  $\mathfrak{m}$  viij;  
Ether. chlor.,  $\mathfrak{m}$  vj;  
Succi limonis,  $\mathfrak{m}$  xv;  
Mucilag. acaciæ, ad f 3 j.

Dose, one drachm.

Morphinæ acetatis, gr. i-16;  
Acid hydrocyan. dil.,  $\mathfrak{m}$  ij;  
Oxymel scillæ,  $\mathfrak{m}$  xxx;  
Aquæ, ad f 3 j.

Unless there be a tendency to hemoptysis

it is best not to give morphine mixtures during the day, but to employ a simple preparation containing either acid and oxymel or ammonia and squill. It should be remembered that acids check, and alkalies promote, pulmonary secretion. It is best, then, to reserve the combinations of ammonia for cases with secondary bronchitis, when the following prescription may be used:

Tinc. hyoscyami,  $\mathfrak{m}$  xx;  
Spirit. chloroformi,  $\mathfrak{m}$  x;  
Misturæ ipecac. cum ammoniæ, ad q. s. f 3 j.

If the sputa be very tenacious an alkaline draught, taken in warm water on first waking in the morning, will be found to loosen the secretion and prevent retching from continued cough. Such a draught may be composed of:

Sodii bicarb., gr. x;  
Sodii chlorid., gr. iij;  
Ether. chlorid.,  $\mathfrak{m}$  v;  
Aquæ anisi, f 3 j.

One should, however, seek to reduce as much as possible the amount of medicine taken into the stomach, and in the treatment of cough there is ample opportunity for alternative methods. Nothing gratifies patients more than the simple licorice and aniseed lozenges familiarly known as the "Brompton Blacks." Equally pleasing, and of rather more benefit, is the use of Yeo's respirator on which some volatile fluid has been dropped, for half an hour several times a day. Useful formulæ are:

Ol. eucalypti, 50 parts;  
Spirit. chloroformi, 50 parts.

Ol. pini sylvestris, 50 parts;  
Spirit. vini rect., 50 parts.

Menthol, 20 parts.  
Ol. olivæ, 80 parts.

About twenty drops of any of these combinations may be used on each occasion; but as they are all stimulant and expectorant, none of them should be prescribed if hemoptysis has recently occurred.

Excellent sedative inhalations can be made by adding succus conii f 3 j, tinctura lupulini f 3 ij, or tinctura hyoscyami f 3 j, to eight fluidounces of boiling water with a few drops of chloroform in a Maw's porcelain inhaler. However, a morphine lincture by night and a simple lozenge by day may be all that is required. But, to recapitulate: Ipecacuanha and hyoscyamus and the warm alkaline draught if there be much secondary bronchitis, sedative inhalations and acid mixtures

if there be old cavities to dry up, and stimulant inhalations and alkaline mixtures if secretion be not adequately removed, have each and all their place. Two other measures which relieve cough should not be forgotten—the vigorous painting with tincture of iodine on the chest wall over an old and irritating cavity, and friction with a stimulating liniment if much chronic pleurisy exist.

*THE TREATMENT OF PROSTATIC HYPERTROPHY BY OPERATIONS PRACTISED UPON THE ADNEXA.*

ALBARRAN and MOTZ (*Annales des Maladies des Organes Génito-Urinaires*, January, 1898), concluding a long article upon this subject, state that it is rational to admit *a priori* that castration diminishes hypertrophy of the prostate, especially when the enlargement is of the glandular form; that although the anatomico-pathological evidence is still inconclusive, clinical experience shows that there is a marked diminution of the enlargement of the prostate after castration. This diminution is due at first to relief of the congestion, later to true atrophy. This atrophy may be very slow and may not begin for six months or even more after operation, and may progress for more than two years. It may advance to such a state that the prostate may not be felt by rectal palpation. Certain portions of the enlarged organ may atrophy, and this process may affect the lobe which projects into the bladder. It is not possible to assert at present that all enlarged prostates will atrophy after castration, nor can it be said to what extent this atrophy will progress. It is even probable in certain cases there may be no atrophy. As to the effect of castration on the bladder in prostatics with dysuria without retention of urine and in whom the contractility of the bladder is preserved, patients suffering chiefly from frequency of micturition due to congestion of the prostate and bladder, the operation is followed by a rapid improvement of vesical symptoms, due undoubtedly to the relief of congestion. In prostatics suffering from retention of urine the results are truly remarkable. Of twenty cases operated on the operators state that three died, and in seventeen others spontaneous urination was rapidly reestablished. Four patients were able to urinate even a few hours after the operation. Eight others recovered this power even within the first week. In the slowest case spontaneous micturition occurred a month after operation.

In prostatics suffering from chronic, incomplete retention of urine it was found that about fifty per cent. were entirely cured and the large majority of the remainder were greatly benefited. In prostatics with chronic complete retention the mortality of the operation was large, though even among these patients more than half were cured and most of the remainder were greatly improved.

The authors find that out of 124 cases the mortality was 14.5 per cent., due in the main to antecedent infection of the kidneys. Contrasting this mortality with that of the prostatics received in the Hospital Necker and not submitted to operation the authors find that the figures stand at fourteen per cent.—*i.e.*, 31 deaths in 220 cases. Operation is in itself not grave, and the mortality could be reduced to nothing by a proper selection of cases. In certain instances feebleness and inaptitude to work have been noted after operation. All these conditions are transitory. Certain psychic disturbances, varying from simple intellectual depression to delirium or even acute mania, have been observed, but these disturbances commonly appear in the first days following operation and finally disappear without leaving any trace. In contrast to this it is worthy of note that certain cases have exhibited a decided improvement in mental condition after operation.

The authors hold that the brilliant results obtained from castration in cases of enlarged prostate are such that they fail to justify not recommending it in the majority of cases. They would, however, reject this operation in cases of renal infection, in cases where the patient is extremely ill, and in cases which can be cured by simpler means. Thus in case of acute retention the treatment advocated by Guyon will be often successful. When this fails, or when an acute retention is constantly occurring and inevitably leading to chronic retention, an operation will be indicated. Cases of chronic retention may be complete or incomplete. The operation is indicated when methodical catheterization will not cure infection. The only contraindications to catheterization would be the existence of an intravesical projecting prostatic lobe which could be removed, which would justify prostatectomy. Neither the size or the amount of induration of the prostate, nor the loss of vesical contractility, should be considered as absolute contraindications. The time to establish a clinical distinction between fibrous and glandular forms of prostatic hypertrophy is futile. The comparison of

post-mortem findings and the results of clinical examination before death have shown that soft prostates were often essentially fibrous, whilst hard prostates were distinctly glandular. Indeed, the authors hold that as the evidence now stands castration probably also favorably affects fibrous prostates.

#### *TREATMENT OF SENILE GANGRENE.*

JONES (*Medical Chronicle*, January, 1898) lays down the following rules for the treatment of senile gangrene: (1) When the gangrene is limited to one or two toes and the patient's condition is satisfactory, the surgeon should be content with the expectant plan of treatment, taking precautions to lessen or prevent the effects of local septic infection. (2) When, however, the gangrene has reached the metatarsus, he should be prepared to perform the high operation—that is, amputation above the knee, or, in rare and favorable cases, through the knee-joint itself. The local treatment in limited forms of gangrene should consist in thorough cleansing of the foot and leg, free dusting of the immediate vicinity of the dead part with iodoform, and the application over this powder of sublimate or salicylic wool. The use of artificial heat in the form of poultices and fomentations must be discarded as not only ineffectual, but positively mischievous. Pain may be relieved by the internal administration of opium and the local application of a powder composed of boric acid, sublimate of bismuth, and hydrochlorate of morphine. A case is reported of amputation through the lower third of the thigh for gangrene of the leg in a man aged fifty-seven, who a fortnight after the operation was pronounced to be out of danger and making a very good recovery. —*British Medical Journal*, March 12, 1898.

#### *THE SURGICAL TREATMENT OF CONGENITAL ANO-RECTAL IMPERFORATION CONSIDERED IN THE LIGHT OF MODERN OPERATIVE PROCEDURES.*

MATAS (*American Journal of Obstetrics and Diseases of Women and Children*, December, 1897) contributes an article under this title, in which he reviews the various procedures that have been suggested with the view of overcoming intestinal obstruction caused by congenital ano-rectal imperforation. They may be grouped as follows:

A. Lower or infrapelvic operations.

I. Involving the soft parts only.

1. Puncture or incision, with dilatation of thin membranous septa or diaphragms which separate the anal cul-de-sac from the distended enteron above.

2. Typical perineal proctoplasty, with or without excision of the anal cul-de-sac, when this exists.

II. Perineal methods involving the pelvic skeleton, in order of severity.

1. Coccygeal displacement backward.

2. Median sacro-coccygotomy.

4. Parasacral incision.

5. Single osteoplastic sacro-coccygeal flap.

6. Median sacro-coccygotomy with bilateral osteoplastic flaps.

III. In all of these procedures the peritoneum may be purposely and freely opened for exploratory purposes.

B. Upper or anterior abdominal methods.

1. Primary median or lateral exploratory celiotomy, to recognize anatomical position of rectal ampulla and detach it from the peritoneum or mesentery, so as to create a perineal anus, without colostomy.

2. Secondary median or lateral exploratory celiotomy, with same object, after failure of previous perineal exploration.

3. Secondary inguinal colostomy, after failure of perineal exploration, with immediate attempt to restore continuity of rectal outlet to anus, after drainage of bowel, the rectal end being guided to the perineum by a probe introduced through colostomy orifice.

4. Primary colostomy without perineal exploration, with secondary attempt at restoration of continuity of bowel to perineal anus at another sitting.

5. Inguinal colostomy with permanent artificial anus in left iliac region, or cecotomy when the sigmoid flexure and colon are missing.

6. Enterotomy, when condition of patient is too critical to risk further exploration for rectum or colon; this can be applied successfully in sacral as well as in inguinal regions.

The conclusions that can be drawn from the detailed study of these methods the author states as follows:

1. The most prevalent varieties of congenital ano-rectal anomalies, especially the types of imperforation which most urgently call for surgical relief, are amenable to successful treatment by the perineal route. The cases that would justify primary colostomy are in the minority.

2. There is no external sign or physical criterion by which we may determine the

actual anatomical conditions before operation in the majority of cases. The presence or absence of the anus, the coexistence of pelvic (osseous) deformities, the evidence of fistulous communications with the ano-genital tract, are all suggestive but unreliable indications of the anatomical situation and relations of the rectal ampulla.

3. Neither can we depend upon the introduction of guides into the bladder or vagina to determine the presence or absence of the enteron or to indicate its relative position in the hollow of the sacrum. The use of the exploring aspirating needle is also fallacious and is often positively dangerous, owing to the risk of peritoneal contamination.

4. The direct causes of death in imperforate infants are: stercoræmia, peritonitis, exhaustion, which rapidly set in from intestinal obstruction and stercoral stasis, and favor the absorption of toxins and the migration of intestinal micro-organisms. The influence of these causes in determining the results of operations is directly proportional to the length of time that has elapsed since birth; *ergo*, the earlier the operation is undertaken the better will be the result.

5. The resistance of the imperforate infant to traumatism is inversely proportional to the time that has elapsed since birth. The longer operative interference is delayed the less will be the resistance to shock. The experiences related in this paper emphasize this well established proposition and demonstrate that the new-born infant, when free from sepsis, compares most favorably with the adult in the capacity to resist traumatism. The experiences obtained in recent operations with sacrectomy and with the combined sacro-abdominal operations emphatically confirm the dicta of Bodenhammer (1860) and Girdalès (1865), who were foremost among the masters of the past generation to repudiate the tradition that the new-born infant is incapable of resisting severe traumatism.

6. The ideal result of operative interference in these cases is the restoration of the intestinal outlet in its normal situation or in the perineo-sacral region, with perfect functional (sphincteric) control.

7. The only way in which this result can be accomplished without subsequent evil effects is by proctoplasty performed in accordance with Amussat's rules.

8. In order to insure the best functional results (sphincteric) the operator should endeavor to avoid unnecessary injury to the sphincter and levator fibers by making strictly

median incisions. When these muscles are absent or unavoidably injured, Gersuny's axial rotation of the bowel will probably prove the most effective preventive of incontinence.

9. The older methods of relief by puncture or incision, without proctoplasty, are no longer justifiable except in purely membranous obstructions, though even the vast majority of these require excision followed by proctoplasty.

Whenever there are dense strictures or diaphragms at the junction of the anus and rectum, it is indicated to resect the stricture or diaphragmatic portion and to suture the normal rectal mucosa to the anal margin.

10. The intraperitoneal exploration of the pelvis through a perineo-sacral opening, as suggested by Stromeyer and since practised deliberately by a number of operators, is not only a legitimate procedure, but it is one of the marked advances in the treatment of this class of cases.

11. Intraperitoneal exploration through the perineum should be systematically resorted to whenever a reasonable exploration of the subperitoneal tissues fails to reveal the rectal pouch.

12. The suggestions made to amplify the primary perineal incision by the removal of the coccyx (Amussat - Verneuil), excision of the sacrum (Kraske and his followers), by osteoplastic sacral flaps (Heinecke, Roux, *et al.*), and by parasacral incisions (Vincent, Zuckerkandi, etc.), are adjuncts of value both in facilitating the search for the enteron and in perfecting a proctoplasty without dangerous tension in the lower pelvic outlet.

13. It is preferable as the method of election, in every case in which a perineal incision is insufficient to reach the enteron, to adopt the coccygeo-sacral route by a free medial incision through the cartilaginous coccyx and sacrum, as practised by Vincent and advocated by Sieur and others. If more space is required a bilateral osteoplastic flap can be easily made, which will afford a larger entrance into the pelvis without permanently sacrificing the osseous framework.

14. The predisposition to rectal prolapse after sacrectomy should not be forgotten, and for this reason as little of the bone should be sacrificed as possible.

15. Primary exploratory laparotomies, with the view of identifying the anatomical relations of the enteron and guiding the bowel to the perineum from above, are not indicated as a rule; and thus far, at least in the few

cases in which it has been tried, has not been followed by encouraging results, mainly, no doubt, because of the distended condition of the bowels and the crowding of the upper pelvic strait upon the distended sigmoid and the rectal cul-de-sac, which compels enterotomy and a consequent greater risk of peritonitis before the rectum can be guided to the perineal level.

16. Since the advent of the perineo-sacral route, with or without intrapelvic exploration, the great majority of ano-rectal imperforations, irrespective of their anatomical peculiarities, are amenable to successful treatment by the formation of an artificial anus in the perineo-sacral region.

17. The perineal anus can be formed by attaching the terminal portion of the colon (rudimentary rectum) to the perineal or perineo-sacral wound, which is the ideal result; but in emergencies it is justifiable to attach the small bowel to the perineo-sacral wound.

18. The mortality of colotomy, in the statistics thus far recorded (whether primary or secondary), is greater than that of perineal or even sacral proctoplasty.

19. (a) Inguinal colotomy as a primary procedure is indicated only when the infant is seen in an exhausted condition at a late hour, days after its birth, when stercoræmia, peritonitis and exhaustion are present, and life is ebbing fast. Then some sacrifice of ultimate benefits must be made for the sake of time. (b) In every other condition the perineal incision should initiate the primary effort at relief.

20. Median or lateral exploratory laparotomy is indicated when, after the intraperitoneal exploration through a perineo-sacral incision, it is evident that the terminal cul-de-sac of the rectum or any portion of the colon cannot be brought down to the pelvic outlet and only the small intestine is available for proctoplasty. Under such circumstances, if the condition of the patient is good, it is justifiable to perform exploratory laparotomy to identify the lowest portion of the bowel, if only to avoid the possibility of a physiological error. The aim of the operator should then be to guide the colon, the cæcum, or the most available loop of ileum to the perineo-sacral wound, where it can be drained permanently with greater safety.

21. If for any reason the operator should prefer to make an iliac colostomy (Littre), he should always consider the possibility of restoring the anal outlet of the rectum by a

secondary operation on the lines suggested by Chassaignac, Lannelongue, and others.

22. The perineo-sacral anus, if properly performed, is almost certain to be voluntarily controlled in the course of time; the iliac anus is far more uncertain in this respect.

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*ABORTION WITH SEPTICEMIA; TREATMENT BY ANTISTREPTOCOCCIC SERUM; RECOVERY.*

CAMPBELL (*British Medical Journal*, Jan. 29, 1898) records a case of puerperal septicæmia successfully treated by antistreptococcic serum. The highest temperature reached was 104° F.; pulse 135. One injection of ten cubic centimeters of the serum was practised. The temperature almost immediately fell and the symptoms subsided by lysis.

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*THE FIRST COMPLETE REMOVAL OF THE HUMAN STOMACH IN AMERICA; PROBABLY ALSO THE FIRST TOTAL GASTRECTOMY IN THE WORLD.*

HEMMETER (*Medical Record*, March 19, 1898) reports the first complete removal of the human stomach in America; probably, also, the first total gastrectomy in the world. He notes that Schlatter in reporting his unique cases of complete removal of the stomach asserts that the recorded cases of gastric excision are instances of partial, chiefly pyloric, removal of the stomach. Schlatter narrates the case of Langenbuch in which seven-eighths of the stomach was removed. Recovery followed. This, as well as Schuchardt's case in which only a narrow strip of the stomach near the cardia was left, can from the functional standpoint be regarded as a total excision. Schuchardt's patient lived two and a half years and apparently enjoyed perfect health. Ewald referred to the abolition of the human stomach in which about an inch of the cardiac end had been excised. The patient died three days afterward from hemorrhage. Perhaps the advance in surgical technique of Schlatter's successful case is that he has shown a successful way of union between the esophagus and jejunum. The value of this new operation consists of and is limited to the advance represented by this simplification. The second advantage which medical science might gain from the operation—i.e., the contributions to the knowledge of digestion in general and of metabolism—is realized by studies and operations made previous to esophageal enterostomy.

The main object of Hemmeter's contribution is to call attention to the fact that the first total ablation or extirpation of the human stomach was executed in America long before Dr. Schlatter's operation, or long before that of Dr. Bernays in this country. It was performed by Dr. Connor, of Cincinnati, and is reported in the *Centralblatt für Chirurgie* for 1885. This surgeon attempted to unite the esophagus with the duodenum without attempting the esophago-enterostomy which was later on successfully carried out by Schlatter. The patient lived thirty-six hours. Schlatter's operation was performed September 6, 1897. The duration of life after esophago-enterostomy should on the average be as favorable as after pyloric resection, because the latter is an equally serious operation. Schlatter does not state how long his operation required, but he remarks that his esophageal and duodenal clamps when removed had remained in position for over two hours. The consensus of experience points unmistakably to the conclusion that in malignant disease of the stomach gastro-enterostomy gives the best results obtainable whenever there are secondary metastases or adhesions. It is not necessary to give predigested foods, as the intestine is capable of digesting a certain amount of food to maintain the nitrogen equilibrium. A case like Schlatter's will probably not occur once in a thousand presented for operation, and the patient has not lived long enough to disprove the presence of minute metastases, impossible to discover even after laparotomy.

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CONSERVATION OF THE OVARY AFTER  
HYSTERECTOMY AND HYSTERO-  
MYOMECTOMY.

HOWARD KELLY (*British Medical Journal*, Jan. 29, 1898) states that Sir Spencer Wells struck the first blow in favor of conservatism when he reported the first one thousand cases of ovariectomy in which the ovariectomy was unilateral—that is, one ovary was left—in 228 women who survived the operation and were under forty years of age; 120 of the 228 women bore 230 children, very nearly an average of two children to each woman. Of the women who were over forty years of age there were four who bore children. There is a growing conviction that the ovary belongs to the same group of organs as the thyroid, thymus, and pineal glands, and that in addition to its function of ovulation it secretes a substance which is absorbed and consumed in

the animal economy, and which is necessary to it in retaining its physiological balance.

The ill effects of castration, whether the organs are diseased or not, are often disastrous. Two natural lines of experiment have been tried. It has been shown that the ovaries may be completely severed from their normal surroundings and successfully transplanted either to a part of the broad ligament or the muscles of the abdominal wall. The second line of experimental substitution of the lost ovarian tissue is that of feeding to the women deprived of ovaries one of the organic juices. The results reported by Chrobak were extremely encouraging.

Stehman also reports having procured great amelioration of the symptoms incident to the induced climacteric by the administration of thyroid tablets. A consideration of physiological facts should lead the gynecologist to practise the utmost conservatism in treating the essential organs of sex. Since the spring of 1895 Kelly has invariably made an effort to retain the ovaries, even in those cases in which it has been necessary to remove the uterine tubes and the uterus; the result of this has been a remarkable diminution, and in some cases complete absence, of the distressing nervous symptoms of the menopause.

He reports twenty cases in which the uterus was removed for myomatous or fibroid tumors. In general no hospital cases have been included in a list of later date than December, 1896, although eighteen have been operated on since that time. In every case, of course, the uterus was removed; in eleven instances one ovary and in six instances both, and in ten both uterine tubes. Three of the cases could not be traced. Of the remainder the operation in not a single instance gave rise to any of the aggravating symptoms so commonly associated with the artificially induced menopause. The utmost discomforts experienced were slight flushes; and in nine cases absolutely no symptoms of a menopause are noted. One patient in her thirties, after experiencing no symptoms of the menopause after cessation of the menstruation, began two years after the operation, and fully from four to six years earlier than natural, to pass through the various nervous phenomena of a menopause of ordinary character.

The operation is easy if the tubes are left and the operation is begun by tying off the broad ligament at the uterine cornu, including the isthmus of the tube and the utero-ovarian ligament in the first tie, tying the broad ligament next, and then exposing



the base of the broad ligament, ligating the uterine vessels, amputating the uterus at the vaginal junction, clamping the uterine vessels of the opposite side, and then pulling the uterus up and out, and ligating the round ligament, the tube, and the ovary at the opposite cornu.

Kelly has not gone to the length of attempting to retain inflamed or diseased tubes and ovaries, which can be much more quickly and safely removed in conjunction with the uterus.

#### *A CASE OF PERFORATING GASTRIC ULCER; LAPAROTOMY; RECOVERY.*

In line with several articles on operation for perforating gastric ulcer, the following interesting case is detailed. The patient was under the care of Dr. S. F. TOOGOOD (*The Lancet*, Jan. 15, 1898).

It is probable that the most important factor influencing the result of a laparotomy for a perforated gastric ulcer is the length of time which has elapsed since the perforation. In no recorded case has recovery ensued if the operation has been postponed for more than twenty-four hours, unless extensive peritoneal adhesions existed prior to the perforation. In the following case the operation took place about fourteen hours after the rupture. The sooner the operation is performed the better, though it has been considered advisable by some to wait until the reaction has replaced the first shock of the perforation.

A servant aged twenty-one years was admitted into the Lewisham Infirmary about 1.30 A.M. on September 17, 1897, with the history that she had been suffering from gastric ulcer for some months past and had been attended by Mr. Leonard Stokes. On the 16th, soon after noon, she was seized with sudden acute pain in the region of the stomach, and she fainted. Mr. Stokes promptly diagnosed the rupture of the ulcer, and as soon as the necessary arrangements were completed she was conveyed to the infirmary. On admission she was suffering severely from collapse; her pulse was 130 and very feeble, and the respirations were 34, almost entirely thoracic, and shallow. She complained of intense pain over the whole abdomen, the wall of which was rather distended and was kept very rigid. Percussion revealed that the liver dulness had disappeared in front. Chloroform was administered and Dr. Toogood opened the abdominal cavity by an incision three inches long be-

tween the xiphoid cartilage and the umbilicus; there was a considerable amount of free gas in the cavity. The stomach was seen lying quite collapsed and was found attached by a ring of adhesions to the anterior abdominal wall; a portion of these adhesions had broken down, and the forefinger could easily be passed into the stomach. This attachment necessitated the original incision being continued for about three inches along the left costal margin, when the site of the ulcer was thoroughly exposed. The adhesions were divided with care, but no vessels required ligature. The ulcer appeared as a punched-out hole of the size of a sixpence.

The condition of the patient was so alarming that it was decided not to pare away the thickened edges of the ulcer; accordingly the gap was drawn together by twelve Lembert sutures, using 00 Chinese twist silk and a very fine milliner's needle. Nearly a pint of dark fluid mingled with debris of food was sponged out of the abdomen, and several gallons of sterilized water at a temperature of 110° F. were used in washing out the peritoneum. Special attention was paid to the liver and the interstices between it and the diaphragm, which as well as Douglas' pouch were well sponged out, and a thick strand of cyanide gauze was passed on each side well down to the posterior edge of the liver. The incision was now closed by silk-worm-gut sutures except at the upper angle, where the gauze drains were protruding. The wound was dressed on the same day at 6 P.M., when the gauze drains were removed; that from the right side, being almost dry, was not reinserted, but that on the left was replaced by a Keith's glass tube, having a cyanide gauze wick in its center. During the next forty-eight hours the wound was dressed four times, a good deal of cloudy serum collecting in the tube; but this having ceased, the tube was removed sixty hours after the operation.

Immediately after the operation the temperature sank to 99.4°, but eighteen hours afterward it had risen to 103.6°. However, it again sank, and after a few unimportant fluctuations it gradually became normal and remained so after the fifth day. The pulse improved with the temperature. Three minims of morphine injected hypodermically with one-fiftieth of a grain of strychnine were given every twelve hours for three days. A teaspoonful of hot water was allowed by the mouth every two hours.

Dr. Toogood has found that with a long

tube and with great care and slowness a nutrient enema measuring a full pint may be successfully given, and this amount of peptonized milk with peptone of beef was administered every six hours, while the bowel was thoroughly washed out once in the twenty-four hours with a simple enema.

Seven days after the operation fluid food was commenced by the mouth, one ounce of peptonized milk flavored with Benger's or Mellin's food being given every four hours. After a lapse of two days this amount was given every two hours, and this was gradually increased until in three weeks' time five ounces every two hours was being taken. Twenty-five days after admission the nutrient enemata were discontinued and arrowroot was given by the mouth; after the thirty-first day three ounces of pounded chicken was taken daily; and after the lapse of another week the patient was able to take an ordinary light diet.

The wound healed by first intention with the exception of the track caused by the tube, which granulated slowly, but it was soundly closed in three weeks. About the tenth day a good deal of abdominal pain was complained of which caused much perplexity, until a too sympathetic fellow patient was detected administering bread and butter. The pain ceased with the sympathizer's removal. The patient was discharged plump, ruddy and well on November 20.

#### TUBAL PREGNANCY.

CHASE in the *Brooklyn Medical Journal* for February, 1898, contributes an article on this subject and advocates the following treatment:

If the surgeon or accoucheur should be so fortunate as to detect a case of tubal pregnancy before primary rupture, no time should be lost in relieving the woman of danger involved in rupture. But one of two methods can be pursued after rupture—either reliance on the *vis medicatrix nature*, or the surgical art. Removal by excising the tube by laparotomy is the plain and unmistakable indication, and nothing short of this adequately meets the gravity of the situation. The hemorrhage must be controlled.

Should the ovum chance to die before primary rupture, the contents, together with effused blood, may absorb, or suppurate with its consequences may follow, in which event knowledge of the fact might not be disclosed until the operation. If the case is seen

at or immediately subsequent to time of primary rupture, the same rule holds good. By reasoning that the hemorrhage may cease spontaneously and thus deferring operative interference, the golden opportunity of saving a life may be lost. If some time has elapsed since the rupture, then the necessity for interference may not be imperative, and opportunity may be had to watch the development of the case to determine whether the mass enlarges, diminishes, or remains stationary—and from such data the rule of action will be formulated, according as the life of the ovum is or is not retained.

Surgical experience generally, and here in particular, confirms the truth that the risk of operation is far less hazardous than the continuation of the hemorrhage, which may not cease until life is extinct.

In operation for primary tubal rupture the abdomen should be opened from above, the bleeding arrested by ligation of open blood-vessels, the placenta, ovum and clots removed. Operation *per vaginam* offers inadequate space to effectively control bleeding vessels, and at the same time to be certain of having removed everything requiring removal. If the rupture is in the distal portion of the tube, its removal will include the sac and contents, unless new attachments have formed between it and some portion of the pelvic cavity immediately contiguous. If it is intraligamentous the new formation may be so perfectly removed and the control of the hemorrhage so complete as to warrant the closing of the broad ligament opening by running catgut suture. If not, one of two methods is admissible—either stitch the walls of the sac to abdominal opening, packing the same with gauze enclosed within a Mikulicz bag, or better still, make an opening from the broad ligament cavity into the vagina, either laterally or through Douglas' cul-de-sac, according to its location. Pack the sac with gauze, first carrying the end into the vagina, and closing the abdominal wound. The advantages of downward drainage, when possible, are too obvious to require comment. If for any reason pelvic drainage is needful—as might happen from infection—it should be downward by gauze into the vagina. For this reason the vagina should always be made sterile before commencing the operation.

If recent, the clots are best removed by free irrigation with normal salt solution. If, however, the clots have been within the pelvic cavity for several days, and are attached to the pelvic viscera, only gentle measures

should be used for the detachment, for the risk of tearing the intestines more than counterbalances any disadvantages from their presence. The peritoneum in most cases will take care of blood-clots not infected.

If death of the embryo follows rupture, and effused blood remains either in the pelvic cavity or imprisoned with the broad ligament, the subsequent behavior of these cases is like that of pelvic hematoma. Under such conditions, particularly in the extra-pelvic variety, vaginal incision may be, and often is, the better method of approach. Then the blood and débris may be removed, and efficient drainage established without risk of infecting the peritoneal cavity.

Every facility for thorough and rapid work should be at hand in these operations, and for this reason, other things being equal, the best results are likely to attend the work in a well equipped hospital. The necessity, oftentimes, of placing the patient during the operation in the Trendelenburg posture is imperative and without it failure would ensue. It is highly essential for the patient's safety, in presence of exhausting hemorrhage and shock, that sparteine, strychnine, digitalin, or nitroglycerin be administered hypodermically according to the existing indications. So, too, high rectal enemas of hot normal salt solution may be advantageously employed with a view of augmenting the fluid in the circulation. If this is unavailing, intracellular or intravenous administrations of normal salt solution are the remedies *par excellence*.

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REMARKS ON THE SURGERY OF THE VAS DEFERENS RELATIVE TO SOME URINARY DISORDERS.

The following interesting and instructive statements are made by REGINALD HARRISON (*The Lancet*, Jan. 8, 1898):

Judging from various communications that have recently appeared both in British and foreign journals, an increased experience tends to confirm the favorable view taken of division or resection of the vas deferens in certain urinary disorders in the author's Bradshaw Lecture. He proposes supplementing these remarks on this important subject:

In speaking of partial resection of the vasa deferentia relative to the enlarged prostate, it must not be supposed that either it or any other proceeding will meet all forms and degrees of this affection, or that its results will be uniform. A moment's consideration at once renders this intelligible. There is a

tendency as age advances and when the meridian is passed towards a fibrotic degeneration of the testes and prostate, in which the latter gradually ceases to be glandular and becomes transformed more or less into masses of unstripped muscular fiber and connective tissue. When this condition is far advanced the part is only amenable to that kind of treatment which applies equally to other fibrous growths wherever they are situated within the body. Castration and vasectomy may both alike fail under these circumstances, and some form either of prostatectomy or prostatotomy, should the necessity arise, is more likely to be successful and permanent. Similarly in carcinoma of the prostate we have a condition where no good results are to be expected, though it must be said that in one or two instances, where division of the vasa was practised and the growth eventually turned out to be a cancer, it does not appear that any harm was done. Excluding, however, such exceptional cases as these, which we are now learning to discriminate, and allowing for the degree of fibrotic degeneration that the parts undergo, there can be no doubt that in vasectomy we have a valuable and fairly certain means of removing the distress that a hypertrophied prostate in the usual acceptation of the term occasions. The weight of evidence in reference to this, the author thinks, is now sufficiently conclusive and may be safely acted upon. Further, it tends to show that if vasectomy fails castration is not likely to do otherwise, though the selection of the former does not necessarily preclude a subsequent trial of the latter.

There can be no doubt that castration is a serious undertaking in the case of many persons of advanced years enfeebled by illness as compared with vasectomy, and the risk connected with it is not inconsiderable. On the other hand, if vasectomy is performed under certain conditions it is not open to these objections. As prominent among the latter the author would again urge that though a resection of a part of the seminal ducts is a minor proceeding, it is better not to operate upon both canals simultaneously, but on two separate occasions with a short interval between. That physiological effects of an active kind not limited to the urinary organs sometimes follow upon the simultaneous removal of the testes, and less rarely on the simultaneous resection of the vasa, there can from recorded cases be no doubt. In some they have taken the form of cerebral

disturbance and in others of mental decay, which have marred the good effects of any structural changes in the prostate which have also followed. The author has neither seen nor heard of such results as these being observed where both vasa were not divided at the same time. Excision of these ducts is, however, a slower mode of effecting prostatic shrinkage than castration, as it entails the induction of a double process of atrophy—that is to say, by means of an atrophy following upon a preceding one. In this lies, he believes, in a great measure its safety. Whilst improvement usually commences at once on the completion of the operation and steadily advances, it is sometimes several weeks and even months before the full amount of benefit is reached. In a recorded case of suprapubic fistula following an operation where double vasectomy was performed for the purpose of causing a diminution in the size of the prostate and the restoration of the natural passage for the urine, over four months elapsed before the fistulous opening quite closed and urination was again normal. The patient was sixty-six years of age and made a complete recovery, though no further treatment was employed. Other instances have come under notice where the maximum amount of good was not reached for even longer periods than this.

In the following instance progress, was slow, but it would have been impossible to have brought about so much comfort with a prospect of more by any other means. In November, 1895, the author saw a man, aged seventy years, who, in addition to glycosuria, was suffering from a large prostate with much obstruction and residual urine. In spite of treatment with the catheter and other means his symptoms increased. Early last year (1897) the frequent calls to attempt micturition and the great pain and difficulty in using the catheter and the general distress induced the author to advise vasectomy. The first vas was divided on April 13 and the second on May 11; from these dates he steadily but slowly improved. In a letter to the author (December) he writes: "I certainly am very much better than I was, and so long as I am quiet and able to carry out my regular treatment I get on very comfortably." He uses his catheter five or six times in the twenty-four hours, and can now void some urine voluntarily. The author has good reason for believing that he will still further improve. As the fibrotic condition of the parts was much advanced at the time of

operation, it would have been better if it had been performed earlier.

And this brings the author to remark that, having regard to the time often occupied by the prostate before it assumes a form or a size calculated to seriously obstruct micturition so as to necessitate operative interference, the sudden and active induction of its atrophy may be open to objection for reasons which may possibly be explanatory of what he has referred to as more frequently following upon simultaneous removal of both testes. We are only, as it were, beginning to study in view of their application for therapeutical purposes the physiological effects of certain changes produced by the addition to, or withdrawal from, the body of certain organized parts or materials. In the case of the former we have some evidence of this in effects produced by the introduction of toxins and animal alkaloids, while the latter may be demonstrated as following removal of the thyroid gland. On all grounds, therefore, the author prefers to bring about the changes desired in the prostate in the way he has always advocated. The cases in which benefit has followed vasectomy have been those where the symptoms were induced directly or indirectly by senile enlargement of the prostate gland. Amongst these we may include very frequent and painful micturition, difficulty with and frequent use of the catheter with much spasm and hemorrhage, and the more severe forms of cystitis arising from obstructed micturition. In some of these instances the division of a single tube has proved efficient. Further, in certain recurring cases of stone depending on sacculation or pouching of the bladder complicating prostatic hypertrophy, the induction of atrophy of the latter has afforded some excellent results. The probable explanation is due in all these examples to what the enlarged gland undergoes, and consequently to the greater freedom with which urine is passed or the catheter is introduced. In all cases where vasectomy is practised, before both tubes are divided it is well to ascertain that the bladder is quite free from stone. He has met with more than one instance where a small calculus was passed after a vasectomy which had previously been undetected by a sound. Probably it had been concealed or pouching by the large prostate, and had escaped spontaneously as the latter decreased in size.

Further, the enlarged prostate is often a serious detriment to the kidneys by establishing a back pressure of the urine, which can

be most injurious to these organs. He refers to that class of cases where the urine excreted under pressure is constantly of a low specific gravity. Here, as Sir James Paget observed, "there will be danger from the most gentle catheterism." The author has seen low densities in urine rise steadily to normal and remain so, after the tension has been taken off micturition by the induction of atrophy of the prostate. It is not unlikely that we may find in vasectomy another means for removing intrarenal tension. It must be remembered that it sometimes takes but very little to render a prostate obstructive. Sir Henry Thompson pointed this out in connection with his important studies on the pathology of this gland. The author has seen enough to convince him that a small amount of shrinkage, provided it takes place in or indirectly affects the right spot, makes all the difference as to whether a man leads a life of comfort or not.

It is not unlikely that this operation will be extended to other disorders of the urinary organs. Though the normal function of these ducts is that of conveying the seminal fluid from the testes to the vesicles and prostatic urethra, they are equally capable of transmitting micro-organisms in both upward and downward directions. In this sense they may therefore be regarded as distributors of disease. Some years ago, soon after he had published a short article on division of the vas deferens relative to prostatic hypertrophy, he saw a delicate young man with a strong tuberculous family history with a nodule in his left testicle remaining after an acute gonorrhea. This nodule was deemed to be tuberculous or likely to become so. The question then raised had reference more especially to the removal of this by operation on the ground of its suspicious nature. The urine was healthy, and so was the opposite testicle and its tubes. Nor was he able to discover any evidence of deposit, so far as the finger could reach, either in the vas or the prostate. The patient, who had had some medical education, was anxious that either the nodule or the testis should be removed. The author did not feel disposed to recommend either course. Having regard to the fact that the disease appeared limited to the nodule and that any infection would probably pass along the canal of the vas deferens, he proposed to excise a portion of the latter. This was done, and the wound healed in a few days. A year afterwards it was found that the testis and nodule had both com-

pletely atrophied, and no signs of tuberculous infection could be detected. The patient's health and sexual powers remained unimpaired.

The second group of cases of transference of infection through these ducts may be illustrated by the inflammations that take place of the testes and tubes occurring in connection with some cases of prostatic hypertrophy where catheterism is necessary and often difficult. This is a complication which, when frequently repeated, seriously adds to the gravity and pain of these disorders. Early in the year 1896 the author saw a man approaching seventy years of age, otherwise in good health, who, in addition to much prostatitis, repeatedly suffered from most painful epididymitis in one or both organs, though sexual power had ceased for some years. He was dependent on the catheter. These attacks had been going on for some months, almost entirely confining him to bed and preventing him attending to his business. The author divided his vasa for him with great relief so far as his prostatic symptoms generally were concerned, and since this was done he has had no further trouble with his testicles.

The author has tried various methods for resecting the vasa. The simplest appears to consist in rendering the vas superficial by manipulation of the scrotum and making a small incision over it. It can then be easily seized with a Spencer Wells' clamp forceps and brought to the surface, where it is practically isolated by a little scraping and a blunt hook or aneurism needle passed beneath it. A loop is included by a silk ligature and the free portion removed by scissors. To ligature the duct is insufficient, it being necessary to resect a portion of it. After the loop has been removed the stump is returned with the ligature cut short, and the little wound is then closed with a suture or collodion. Union usually takes place in the course of a day or two. In this way the operation can be performed quickly, and almost bloodlessly.

In concluding these remarks the author need hardly suggest that patients should invariably be made to understand, whatever their ages may be, that though division of one duct does not interfere with the function of generation, the subsequent section of the second duct entirely and permanently extinguishes any sexual power that the individual may have previously possessed. The operation may therefore be said to be restricted to that

period of life and to coexisting circumstances when the general function relative to the urinary disability is ceasing or has ceased to be a matter for consideration. The cases must be extremely rare where in earlier years the damage occasioned by the hopeless loss of all control over this function calls for such measures as vasectomy would undoubtedly supply. Further, he would repeat in connection with the latter operation, as well as with other procedures of a like nature, that they are only applicable to grave varieties of prostatic disease and other complications arising out of them. When we recognize how many elderly men carry on long and useful lives who are more or less dependent upon the aid their catheter affords, it is hardly necessary to say that such measures can only apply to exceptions and not to the rules. The latter are already adequately provided for, whilst in the interests of the former all proved methods either of cure or of relief must receive our careful and unbiased consideration.

*LEFT SUBCLAVIO-AXILLARY TRAUMATIC ANEURISM; LIGATION OF SUBCLAVIAN ARTERY IN ITS SECOND PART; RECOVERY, WITH PERFECT USE OF ARM.*

CROLY (*Medical Press and Circular*, Feb. 16, 1898) reports a successful case of ligation of the subclavian artery in its second part. The patient was wounded by a stab in 1893. In 1895 he exhibited a large, pulsating tumor occupying the subclavicular and axillary space. The upper extremity was wasted. In December, 1895, operation was performed. A vertical incision was made along the outer border of the sterno-mastoid muscle, and a horizontal incision was carried parallel to the clavicle and almost its complete length. The entire origin of the sterno-mastoid was divided; the tumor was found occupying the third portion of the subclavian artery. The outer border of the anterior scalene, which had been turned backward by the pressure of the tumor, was raised and divided by a pair of blunt scissors. The operator scraped through the deep fascia and exposed about a quarter of an inch of the subclavian. The sheath was incised, and an especially long, deeply curved aneurism needle with a large eye was passed about the artery from below and within, upwards and slightly outwards. This needle was armed with a ligature made of ox-peritoneum and was tied on the side next to the heart by the first hitch of the

reef-knot. The operator merely approximated the internal coats, as suggested by Scarpa, and used no violence whatever. The second ligature was applied in the same manner, and finally the four ends were drawn as a single ligature, holding two in each hand, and tied in the second hitch of the reef-knot. The advantage incident to using two ligatures is that a greater extent of the intima of opposite sides is brought into contact. The wound was washed out with warm carbolic lotion, and the edges closed with gut sutures. The wound closed without complication and the patient recovered completely. Croly quotes from literature a number of other interesting cases.

*INFLATED RUBBER CYLINDERS FOR CIRCULAR SUTURE OF THE INTESTINE.*

HALSTED (*Bulletin of the Johns Hopkins Hospital*, February, 1898) states that it is bad surgery to employ stitches which enter the lumen of the intestine. It is impossible to suture the serosa alone. It is impossible to suture unfailingly the serosa and muscularis alone, unless one is familiar with the resistance offered to the needle by the submucous coat of the intestine; furthermore, stitches which include nothing but the serous and muscular coats tear out easily and are not to be trusted.

Each stitch should include a bit of the submucosa. A fine thread of this coat is much stronger than a considerable shred of the entire thickness of the serosa and muscularis. It is not difficult to familiarize one's self with the resistance offered to the needle by the submucosa, and with a very little practise one learns to include a bit of this coat in each stitch.

The mattress stitches are to be preferred to Lembert's, because one row of them is sufficient, because they tear out less easily, oppose larger surfaces and more evenly, and constrict the tissues less than Lembert stitches do.

In circular suture of the intestine, only one row of stitches should be taken, and the entire row should be applied before a single stitch is tied; otherwise it is impossible to preserve a straight line in the taking of the stitches, and the stitches taken last may be much farther from the cut edge than those taken first, and the flange turned in may be so broad as to occlude the intestine's lumen.

Before the intestine is resected, its blood-

supply should be most carefully studied, with reference not only to the placing of ligatures, but also of the stitches, and the stitches should be so placed that the circulation, up to the very edge of the parts to be sewed, shall be as perfect as possible.

The results obtained by adhering strictly to the foregoing rules have been so perfect that the author has employed no other method in his practise.

Halsted holds that license to practise general surgery should be withheld from those who have not practised on animals the operations for circular suture of the intestine and intestinal anastomosis. As a case in point he recalls an instance in which a surgeon asked his assistance in performing a circular suture of the intestine. He readily consented to practise the operation upon dogs. At first his dogs all died. He finally succeeded in saving more than fifty per cent. of the dogs operated upon. The operation on his patient required five hours, but was successful.

Experts in intestinal surgery, almost without exception, prefer to perform circular suture of the intestine without the use of mechanical devices.

Halsted holds that his own operation, previously described, is by no means satisfactory, notwithstanding the very perfect results which attended its employment in the hands of others as well as himself. The disadvantages of his original method and of all similar methods were as follows:

They required about twenty minutes to perform the operation.

One or two assistants at the wound were indispensable.

Clamps or the fingers of an additional assistant were necessary to prevent the escape of intestinal contents.

The vermicular action of the intestine (particularly in dogs) was a great annoyance, for it prevented an accurate disposition of the stitches. Stitches applied as near together as possible during the intestinal contraction might be too far apart in the stage of relaxation.

If the pieces of intestine to be united were not of the same size their adjustment might be very difficult.

The rolling out of the cut edges of the intestine prevented in places recognition of the precise edges, and hence the operator might not know how far from the edge he was placing his stitches nor just how much intestine he was turning in.

The handling of the intestine by assistants

who act as clamps or who hold parts in place during the stitching must be injurious to the tissues and predispose to infection.

Every one of these objections is disposed of by the employment of the rubber cylinders.

The diameter of rubber cylinders and their application are illustrated by a series of admirable drawings; the first of these shows the application of the presection stitches. It is immaterial whether these stitches perforate the wall of the intestine or not, for they are eventually cast off into the bowel. The intestine should be carefully divided with scissors as close to the presection stitches as possible. No visible blood-vessels are occluded by these stitches.

For the human small intestine the diameter of the cylinder is from  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inches. The fourth figure shows two of the presection stitches tied, and the collapsed rubber cylinder is being pushed into the bowel with a forceps. The next figure shows three presection stitches tied. They are supplemented by a fourth stitch, which is removed later to facilitate the withdrawal of the bag. The bag has been inflated with air by the syringe. Then follow figures showing the insertion of the mattress or permanent stitches. The first of these and the most important perforates the mesentery twice and picks up the submucosa four times. It insures the proper turning in of the mesenteric border. From ten to twelve mattress sutures suffice in operations upon the human subject; the first stitch to be tied down is that which secures the mesenteric border. The advantages of the inflated rubber cylinder in circular suture of the intestine are as follows:

The vermicular action of the bowel is arrested over the bag, and the stitches can, consequently, be placed at regular and proper intervals.

The distended bag unrolls and spreads out to a fine edge the everted raw edge of the intestine and enables the operator to place the stitches with great precision at the desired distance from this edge.

If distended intestine is to be sutured to collapsed intestine (in strangulated hernia, ileus, etc.), or intestine of larger to intestine of smaller lumen (jejunum to ileum, duodenum to esophageal end of the stomach, etc.), the smaller may easily be expanded to fit the larger piece.

Very little handling of the intestine itself by the operator is necessary. The tube from bag to syringe is used as a handle to rotate and elevate the parts to be united.

The cylinder takes the place of at least two assistants. The operation could readily be performed without an assistant.

The entire operation, exclusive of suture of the abdominal wall, can be performed on dogs in five or six minutes and probably in less time.

#### PLASTIC OPERATION FOR SADDLE-NOSE.

WARBASSE in the *Brooklyn Medical Journal* for February, 1898, contributes a paper with this title in which he states that the introduction of foreign bodies for prothetic purposes into the tissues, and the securing of the healing-in of the same, still remains a surgical procedure of unfixed utility. That this can be accomplished has long since been demonstrated. The material best adapted to be used for this purpose and the permanency of such operations are the questions yet to be settled.

An operation which the author performed for the relief of saddle-nose is as follows: An incision is begun at the muco-cutaneous junction about half-way down the ala of the nose, and carried upward along the margin of the nostril, across the septum, and down on the opposite side to a corresponding point. This incision is made just within the nostril. The skin is then dissected up over the whole extent of the external nose. This dissection is carried on with a narrow knife and sharp-pointed scissors. The skin is thus dissected free from the alæ and the cartilaginous tip of the nose, and laterally out upon the superior maxillary bone and its nasal process to the canthi of the eyes, and above as far as the frontal bone. The chief bleeding comes from the vessels of the septum and the branches of the angular artery. This is controlled by twisting the bleeding points, by the application of pressure, and by packing the wound with hot compresses. This procedure, over so great an extent and through so narrow an opening, must needs be very tedious. Complete hemostasis having been secured, a bridge of hard rubber is inserted, and the wound closed by a subcuticular suture of silk. Over the whole is then placed a dry compress, which is held in place by adhesive straps, and which is intended to make gentle pressure and act as a splint.

The patient upon whom the author operated was a man forty-two years of age, who suffered since childhood with an aggravated deformity of the nose, a sequel of scarlet fever. All that remained of the nose was the cartilaginous tip, which had also been re-

tracted by the sinking in of the bridge of the nose, so that the nostrils looked upward more than normal. The bridge was made of hard rubber, concavo-convex in form. The two wings of this bridge were widely fenestrated, and when in place rested upon the nasal process and facial surface of the superior maxillary bone.

At the end of forty-eight hours all dressings were removed, and the suture line painted with collodion. The traumatic edema had almost disappeared by the end of ten days, and at the end of two weeks it had quite subsided. There was never any discharge from the wound. The subcuticular sutures were drawn out at the end of ten days. It is now twelve months since the operation, and the patient has suffered no irritation whatever from the presence of this bridge beneath the skin. The nose presents a normal appearance.

#### MODIFICATION OF SCHEDE'S THORACOPLASTY IN CASES OF EMPYEMA.

SUDECK (*Deutsche Zeitschrift für Chirurgie*, 47 Bd., 2 and 3 Heft, 1898) proposes what he considers a serviceable modification of Schede's operation of thoracoplasty. Schede's operation he describes as follows: An incision is to be made beginning at the outer border of the pectoralis major at the level of the fourth rib, curved downward to the lower margin of the pleural cavity, then upward, outward and backward to the middle of the scapula, which is thrust out of the way by turning the arm upward over the breast. This flap is raised and the whole chest wall, including the second rib, is resected. The remaining cavity is filled in as far as possible by a musculo-cutaneous flap. The greatest difficulty is experienced in so arranging this that the apex of the pleural space is carried in. There often results a persistent fistula.

This operation is usually performed on extremely weak tuberculous individuals. It is therefore important that the operation should be as simple as possible, and it would seem advisable to complete it at several sittings.

Sudeck's method is as follows: The first incision begins at the cartilaginous insertion of the fourth rib and runs horizontally outward and backward across the scapula as far as the vertebral arch. Parallel with this incision a second is made on a level with the floor of the suppurating cavity. These two



incisions are connected in the axillary line by a vertical cut making the figure H. The two flaps on the bar of the H are then turned forward and backward. The ribs are resected from the tenth to the third inclusive, and the thoracic walls, together with the thickened pleura, are removed throughout the whole extent of the cavity as far as the second rib. In spite of the shrinkage which occurs in the flaps, when they are spread out it will be found possible to nearly cover the remaining exposed pleural surface, the tongue-like flaps being stretched past each other. They are held in place by packing, and the part which is uncovered remains an open surface. At the second sitting this can be covered either by transplantation or skin grafting. At the third operation the depression made by the costal pleural at the apex of the lung can be closed either by transplanting the flaps or by resection of the second rib.

#### TEMPORARY GASTROSTOMY FOR CICATRICIAL STRICTURE OF ESOPHAGUS.

VILLARD, in reporting a case of the above character, expresses the opinion that we must not consider gastrostomy as a definitive procedure, but rather as a temporary measure, to give the operator time to adapt his means to his case, and to give rest to the esophagus, thereby suppressing the spasmodic and inflammatory condition of that organ, and allowing the surgeon to resume the necessarily suspended catheterization. The following observation confirms these views: A woman aged forty-five years had a cicatricial stricture for the past four years, due to ingestion of sulphuric acid. Regularly catheterized, this woman was fed through the esophagus until June, 1897, when, from unskilful catheterization, deglutition even of liquids became impossible. This woman, after ten days of absolute diet, was in a very bad general condition, weighing only 39 kilogrammes (about 75 pounds). Villard then performed gastrostomy in two sittings, and for nine days the patient was fed through the stomach. Esophageal catheterization then became again impossible, as well as deglutition of liquids. From this on regular dilatation of the esophagus was performed.

Two months later an operation was done to obliterate gastric fistula; autoplasty with three planes of suture; an insignificant fistulette, persisting for some time; complete cure

in November; the patient had then gained eleven kilogrammes. At present she is fed by the mouth regularly and catheterized from time to time, so as to maintain the caliber of the esophagus. This is not, however, a unique case. In a report by Lefort, comprising sixteen patients, thirteen recovered with a permeable esophagus after gastrostomy; and in one case of Jabouley, of Lyons, gastrostomy performed almost *in extremis* enabled esophageal catheterization twenty days after, with a complete subsequent cure. — *Journal of American Medical Association*, Jan. 22, 1898.

#### THE MANAGEMENT OF PATIENTS BEFORE AND AFTER LAPAROTOMY.

WIGGIN (*Medical Record*, Jan. 22, 1898) concludes his paper on this subject as follows, calling attention to the points which he considers important, though usually classed as minor ones:

1. The importance, whenever practicable, of prolonged preparatory treatment of patients about to undergo an abdominal operation.
2. The importance of the administration of cathartics in the early part of this period, followed by large enemas for the purpose of cleansing the intestinal tract.
3. The importance of keeping a record of the body temperature, respirations and pulse-rate for several days in advance of the operation, and of making a final examination of the urine.
4. The necessity in the female of arranging to have the operation performed a few days after the menstrual period, and the cleansing of the vagina, even when it is intended that the operation shall be by the abdominal route only.
5. The administration of a small quantity of peptonized food (one ounce) containing stimulants two hours before giving the anesthetic, for the purpose of lessening the tendency to nausea and vomiting after the recovery of consciousness.
6. The necessity of the anesthetic being given by an experienced physician, and in the smallest possible quantity.
7. The necessity of protecting the patient's body properly with clothing and blankets during the operation.
8. The advantage of stimulating the pulse before the heart has become much exhausted, and of using intravenous saline injections before the radial pulse has become extinct.

9. The leaving in the abdominal cavity after free irrigation of a quantity of hot saline solution, for the purpose of stimulating the patient, preventing (?) the formation of intestinal adhesions, and lessening the danger of septic infection of the peritoneum.

10. The necessity of making the patient comfortable by change of position during the first two days of convalescence, and by the use of the rectal tube.

11. The necessity for the early administration of food in reasonable quantities and at proper intervals.

12. The necessity of withholding stimulating enemata after operations in which extensive and firm pelvic adhesions have been broken up.

13. The necessity for deliberation as to the wisdom of reopening the peritoneal cavity in a given case of supposed concealed hemorrhage.

14. The importance of washing out the stomach as soon as the diagnosis of intestinal paresis is made, and of the persistent use of saline cathartics till the bowels move.

15. The importance of not administering cathartics to those convalescing from abdominal operations, and who are pursuing a normal course, too early or in too large doses.

#### OPERATIVE TREATMENT OF CANCER OF THE RECTUM.

Dr. DESFORGES-MEREIL (*Journal des Praticiens*) describes an operative procedure which he considers eminently fitting for this affection. After having successfully passed in review the coccygeal, sacral, parasacral, vaginal, perineal, and abdomino-sacral ways, the author concludes that it is best to return to the perineal method of Lisfranc, modified by himself as well as by other modern surgeons. This method is the most convenient and the surest, as it permits the entire lesion to be laid open, and allows us to see its connections with other neighboring organs. From a clinical standpoint the author establishes, according to the anatomical divisions of the rectum, two classes of rectal cancers—the recto-pelvic cancer, extending from the third sacral vertebra (superior limit of the rectum) to the levator ani, and the recto-perineal cancer, extending from the levator to the anal orifice. Every cancer situated above the third sacral vertebra the author considers as a tumor of the sigmoid flexure and not a cancer of the rectum. The true

cancer of the rectum should be treated by the sacral method or by prerectal extirpation and suture of the two ends by a special method of the author's, which he calls recto-perineal. The recto-perineal cancer would justify the amputation of the rectum according to Lisfranc's method, and suture of the rectum in the levator ani (the process of the writer). In inoperable cases an iliac anus will be found expedient, made by special process of the author. Those processes of extirpation have been tried on the cadaver and on the dog, and have given the author excellent functional results.—*Medical Record*, Jan. 22, 1898.

#### CHRONIC GONORRHEA AND ITS SCIENTIFIC TREATMENT.

VALENTINE (*Clinical Record*, January, 1898) summarizes his paper read before the Pan-American Congress and calls attention to the fact that Oberlaender strongly advocates dilatation of the urethra, holding as among its advantages easily obtainable practical asep-sis; painless introduction of instruments and the precision of dilating only those spots which the urethroscope shows to be diseased; cessation of the morning drop; no temporary or permanent disadvantages to the patient or his occupation.

None of the dilators, excepting Kollmann's irrigating dilator, should be used without soft rubber covers. These covers should fit snugly and should be tested by turning the screw to its full capacity before the instrument is inserted. The straight dilator is used in the treatment of disease of the anterior urethra. Dilatation should be accomplished slowly and very gently. Shortly before removing it a solution of potassium permanganate, 1:6000, should be prepared with which to make an irrigation either of the urethra or the bladder, as occasion may require. In cases of pronounced urethral hyperesthesia cocaine or eucaine should be used before instrumentation. Dilatation as a rule should be practised about once a week. The amount of dilatation should be governed by circumstances. As a general rule it is safe to dilate two numbers in the beginning; after twenty-eight is reached, one-half, or one number. At the first dilatation the instrument is left in position from three to five minutes. From this time it may be increased by two or three minutes at each session. The extent to which dilatation may be made depends upon the caliber of each individual urethra. When

the patient is cured, then the maximum dilatation required is reached. The patient should always be put in the recumbent position, and extreme gentleness should rule in the use of the instruments. Erections following the use of dilatations may be prevented by the use of monobromate of camphor. When potassium permanganate does not improve a urethritis, corrosive sublimate (1:50,000 to 1:5000) or silver (1:5000 to 1:1000) may be successfully employed. When the prostate and seminal vesicles are involved, or the posterior urethra, they should be subject to massage at least twice a week before each irrigation. The third day after dilatation irrigation is advisable. Should early dilatation be followed by great increase of the discharge, the following dilatation should not exceed the number reached at the previous seance. This repetition of the same number should occur until the following discharge is trifling; then the increase may be one, two, or even three numbers at each sitting. The only correct guide in treatment is urethroscopy. The exact region to be dilated can be determined only by the urethroscope.

The danger which this treatment offers lies in the anxiety of the physician and patient to hurry the case, both observing the almost immediate improvement—to hurry the case by increasing the rapidity of the dilatation and reducing the intervals between each session.

Relapses during treatment are not rare. They are commonly due to sudden and violent dilatation or to new infection. Cases occasionally present in which the urethroscope, after persistent dilatations and irrigations, reveals no infiltration, no abnormality of the folds or striation, no cicatricial bands, to explain the persistence of discharge, especially the morning drop and filaments in the urine. Injections, painting the urethra with caustics, etc., prove of no avail. Then careful search of the urethra will discover, perhaps, only a few gaping orifices of gland ducts. These when treated through the urethroscope put an end to the manifestations of disease.

Kollmann has devised a fine syringe which can carry silver nitrate solutions into the glands, his sharp curette can scrape, and, these failing, they can be destroyed by his electrolytic needles, designed for the purpose.

When old gray-looking cicatricial masses do not yield to dilatations, Oberlaender recommends splitting them with his endoscopic knife. Successive punctures of the

infiltrates with Kollmann's electrolytic needle, followed each time by irrigation, have proven successful. When filaments persist even after urethritis is cured, they probably come from the prostate or seminal vesicles.

Chronic posterior gonorrhea often yields temporarily to mild injections of silver nitrate. Relapses are frequent. Dilatation followed by irrigation often yields prompt and satisfactory results. The treatment of masturbator's urethritis does not differ from that described. One of the most useful drugs is monobromate of camphor in sufficiently large dose to quiet sexual irritability.

Valentine advises the positive prohibition of the so-called diluents—*i.e.*, effervescing mineral waters. The patient may, however, take large quantities of water or milk and water, but certainly not carbonaceous beverages. When it is positively proven that patients suffering from chronic urethritis harbor no gonococci, and when no active, acute, inflammatory condition remains, moderate sexual intercourse need not be specifically prohibited.

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## Reviews.

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A SYSTEM OF PRACTICAL MEDICINE. By American Authors. Edited by Alfred Lee Loomis, M.D., Late Professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., Professor of Medicine in the New York University. Volume III: Diseases of the Alimentary Canal, Peritoneum, Liver and Gall-Bladder, Spleen, Pancreas and Thyroid Gland, Chronic Metal Poisoning, Alcoholism, Morphinism, Infectious Diseases Common to Man and Animals, Miscellaneous Subjects.

Philadelphia and New York: Lea Brothers & Co., 1898.

The volume of this system at present before us opens with Diseases of the Alimentary Canal. To Richard C. Cabot is assigned the task of describing the affections of the mouth and adjacent structures as well as of the salivary glands. This is accomplished in a manner eminently satisfactory in a general work, and the article is of value for the terse manner in which is described a series of diseases of common occurrence. The consideration of Diseases of the Esophagus is undertaken by Allen A. Jones, and that of Diseases of the Stomach by Charles G. Stockton and Allen A. Jones conjointly. The latter writer in discussing organic stricture of the esophagus is made by the text to say "The stricture may be *angular* in form," etc. We presume this to be a typographical error, annular being the word intended, as the text

continues, "new connective tissue proliferation being evenly distributed throughout the whole circumference of the tube." The section on Diseases of the Stomach is preceded by a chapter upon the general examination of the stomach and the examination of the gastric contents, which adds much to the value of the section. We are glad to notice that the writers at this point, and when discussing Carcinoma of the Stomach, give due importance to the presence and detection of lactic acid in the gastric contents. It is properly pointed out that the late investigations of Boas show the unreliability of Uffelmann's test as employed after the exhibition of Ewald's trial-meal. It is a matter of regret, however, that the writers should have been so indefinite in their statements that the student upon learning this fact must search elsewhere for the knowledge to apply Boas' test. In the treatment of Chronic Gastritis the writers give a timely hint against the too frequent administration of lavage, a method of treatment of great value, but undoubtedly in many instances improperly employed. This entire section is one of the most valuable in the volume.

Diseases of the Intestines are well described by William W. Johnston and Henry M. Lyman. W. F. McNutt contributes a thorough and painstaking article upon appendicitis. He decries the tendency of the present day to eliminate the term "typhlitis" from medical literature, and deplores the fact that so little regard should be given to the possibility of the occurrence of inflammation of the cæcum as well as of the appendix. The article throughout is vigorous in tone, and the endeavor is made to place the disease again firmly among those that are "medical," in contradistinction to those that have purely a surgical significance. The position assumed by the writer may best be indicated by quoting from his text: "Always operate when serious doubt arises as to the necessity for an operation. That skilled and experienced surgeons are justified in operating earlier and oftener than unskilled and inexperienced operators goes without saying. While surgeons call appendicitis a surgical disease, under some of the circumstances already mentioned the surgical treatment should be strictly confined to opening an abscess when fluctuation can be distinctly made out; and inexperienced practitioners are fully justified in using carefully the exploratory needle to diagnosticate the presence of pus."

It is impracticable within the limits of this

review to specifically mention all the noteworthy articles contained within this volume. An article of much interest, however, is that upon Food-Poisoning, by Victor C. Vaughan, a subject, though of daily increasing importance, usually given scant attention in works of this character. The article calls for no comment, as the author's name sufficiently places it.

H. A. Hare, in a well considered article, describes the Diseases of the Peritoneum. It is evident that in the acute inflammations of this structure the writer demonstrates a tendency to yield to the spirit of the age which is taking the affection from under the control of the physician and transferring it to that of the surgeon. He says—and very properly we hold—"We believe that in all cases of peritonitis the outlook for the patient will be better if at the first a surgeon be called in to study the case with the physician." The author prefers to treat the affection by opium in large doses rather than by the use of saline purgatives. Indeed, he points out so many accidents likely to happen under the administration of purgatives that the impression is conveyed that their use at all is deprecated. Nevertheless, the writer hints at one very serious objection to the treatment by opium when giving as a reason for the advisability of an early surgical opinion "that the surgeon may grasp all the details of the case before any of them are set aside by opium." It is thus tacitly admitted that an obscuration of the symptoms indicating the necessity for operative interference attends the use of opium.

Diseases of the Liver and Gall-Bladder are most ably presented by J. E. Graham. This is the largest individual contribution to the volume, and the subjects are given thorough and scientific consideration.

Other noteworthy articles are those upon Diseases of the Spleen, by George Roe Lockwood; Diseases of the Pancreas, by Charles G. Stockton; Diseases of the Thyroid Gland, by Francis P. Kinnicutt; Chronic Metal-Poisoning, by Frederick G. Finley; Alcoholism and Morphinism, by James Stewart. The Infectious Diseases Common to Man and Animals are also ably considered by James Law.

It is evident that between the writing and the publication of some of the contributions to this volume a considerable interval of time has elapsed, as the most recent advances in several instances have failed of notice. This is a fault of all Systems, however, and one

which, on the whole, the one now under review possesses in a minimum degree.

The present volume, like its predecessors, is an example of what is best of the publisher's art.

T. G. A.

THE NERVOUS SYSTEM AND ITS DISEASES. A Practical Treatise on Neurology for the Use of Physicians and Students. By Charles K. Mills, M.D. Copiously Illustrated.

Philadelphia: The J. B. Lippincott Company, 1898.

Dr. Mills has presented us with a volume of nearly eleven hundred pages upon this very interesting field of study in medical science. He points out in his preface that the great work of Gowers is the only extensive treatise on Nervous Diseases in the English language, and that he has thought that the compilation of the present volume will present to the profession a full consideration of the many recent additions to the anatomy and pathology of the nervous system. The volume is dedicated to Dr. Weir Mitchell, which, of course, is an exceedingly appropriate act, considering the relations of Dr. Mitchell to neurology and to the medical profession of Philadelphia. An examination of the pages of the book reveals one thing which we think is to be regretted, namely, that enough care has not been given to the illustrations, which, while they generally show what they were intended to show, are not executed as well as their importance deserves.

In the chapter on the General Therapeutics of Nervous Diseases we fail to see why Dr. Mills has made differentiation between "alterative tonics" and "metallic tonics," for all of the alterative tonics that he mentions are metallic tonics. The facts which are cited in the short page devoted to Bromides are certainly not as inclusive of the facts which we know concerning these preparations as one would expect to find in so exhaustive a manual, and we do not think that enough emphasis is laid upon the limitations of these preparations or on the fact that they are capable of doing harm.

We are glad to see Dr. Mills has the courage of his convictions and does not hesitate to mention the particular products which he has found valuable in his personal practise. Notwithstanding these facts, however, we think that this portion of the book in a future edition ought to be considerably modified, for if there is one thing above another which medical literature needs to-day it is some book which will embody most of the valuable points in the therapeutics of nervous diseases, for at the present time these diseases

are more interesting to the physiologist and pathologist than to the general practitioner, owing to the limited treatment which can be accorded to them. This is partly due to the characteristics of the diseases and partly to the faulty and imperfect study of their therapy.

It is in the chapters which study the microscopic and macroscopic anatomy of the nervous system that Dr. Mills' book first strikes us as being exhaustive and useful, and it is to this part of scientific neurology that Dr. Mills has devoted many years of constant labor. Those who attended the First Congress of American Physicians and Surgeons in Washington will remember the brilliant summary of neurological knowledge which he presented in his address to the Congress on that occasion, and it goes without saying that since that time his study and contributions to medical literature have been such as to render these chapters in his book exceedingly useful.

One point which strikes us as being of value in the work is the fact that almost every page reveals Dr. Mills' personal clinical experience, and that the illustrations are, so far as the patients are concerned, many of them original. It was the "original" characteristic of Gowers' book, coupled with the fact that he was able to present neurological facts in an interesting manner, that made that work successful, and Dr. Mills' accuracy in the study of diseases, his love of his theme, and his ability to teach, have produced a volume which bids fair to rival its older antagonist.

DOCTOR AND PATIENT: HINTS TO BOTH. By Robert Gersuny. Translated by A. S. Levetus. With a preface by D. J. Leech.

Bristol, England: John Wright & Company, 1898.

Opposite the title-page of this book, the object of which is well expressed in its title, are quoted the words of Professor Nothnagel, "Only a good man can be a good doctor;" and in its brief seventy-nine pages this is the text upon which the author continually writes.

The first chapter deals with the Relative Position of Patient and Doctor, with Confidence in the Choice of the Doctor; the second with the First Visit, the Examination of the Patient and His Complaints; the third, with Common Sense and Cheerfulness. Then follow others on Diagnosis and Prognosis for the Patient and His Friends; the Action of the Physician in Desperate Cases; on the Frequency and Length of the Doctor's Visits; on the Misconstruction and Abuse of the

Doctor's Statements and Gossip. Other chapters are provided upon the Harmful Influence of the Persons about the Patients; upon Household Remedies and Quack Doctors; of Corruption of Doctors by the Public; Consultations and Fees.

We are sorry that this useful little book, which will prove invaluable to old as well as young physicians, has not been published by an American publisher, but as any one of the large booksellers can readily obtain it, and as its cost is but fifty cents in a good binding, we trust that many of our readers will take enough interest in it to carefully peruse its pages. It is written in a light and useful vein well qualified to amuse as well as to instruct, and the ground covered by its chapters we have already indicated.

As Professor Leech well says in his preface: "We cannot rise from the perusal of this book without feeling better for the wise counsel it gives and without having received an incentive to do that which is right and maintain at its highest point the honorable position of the profession."

A COMPENDIUM OF INSANITY. By John B. Chapin, M.D., LL.D.

Philadelphia: W. B. Saunders, 1898.

Dr. Chapin has devoted so many years of his life to the study and cure of the insane, and has had such an unusual experience in one of the largest insane asylums in this country, namely, the Pennsylvania Hospital for the Insane, and other institutions, that anything which he may write upon his specialty will necessarily attract the interest of medical men in general and of alienists in particular. The book which he has presented to us is a small octavo volume of 227 pages, and this indicates that the text is not particularly diffuse or exhaustive, for the type is large and the leading heavy. The chapters of the book deal with Idiocy and Imbecility, Insanity and the Definition of the Terms, Insanity, the Actions of the Insane, the Classification and Nomenclature, and a chapter upon three of the forms of melancholia. This is followed with one upon the Treatment and Management of Melancholia, while Chapter IX deals with the various forms of mania and its variations. Then follow chapters upon the treatment of Mania, Dementia, Paresis, Epilepsy, and Abnormal Psychical States; the two final chapters of the book being devoted to Morbid Anatomy, Medical Certificates and Feigned Insanity.

As the chapter on Morbid Anatomy only covers seventeen pages, it will be seen that in

this portion of the book at least the text is by no means exhaustive. Indeed, we consider that this chapter is one of the weakest in the volume. The illustrations are good and the text is written in a brief manner, rather in the form of a talk with the reader upon the subject of insanity than with the design of preparing an exhaustive monograph.

As an illustration of the views of an alienist of wide experience the book is of value. Dr. Chapin has been known far and wide throughout the profession for his high ideals as a professional alienist, and we doubt, therefore, whether he will approve of the announcement of the publisher that "Owing to its clear, untechnical language it will prove a useful manual to the legal profession and will afford information of the utmost value and interest to the layman, enabling him to recognize insane tendencies and to provide intelligently for any case of insanity in the family that he may be called upon to care for temporarily." A little knowledge is a dangerous thing, and the records of the medical and legal professions are strewn with the wrecks of families where one member has been insane enough to believe that the others needed his parental guidance and the care of an asylum, when as a matter of fact it was he that was insane. We cannot imagine any department of medicine in which a faulty knowledge of disease upon the part of the layman can produce so much unhappiness for himself and his friends as in that branch of medicine which deals with nervous diseases and the study of the insane.

AN ATLAS ON THE ESSENTIALS OF PATHOLOGICAL ANATOMY. By Dr. O. Bollinger. Volume IX: Diseases of the Circulatory, Respiratory and Digestive Apparatus. Illustrated with Colored Plates.

New York: William Wood & Company, 1898.

This volume is like the rest of this series which we have already reviewed, consisting of an Atlas of Ophthalmology by Haab, of Nervous Diseases by Jakob, and of Gynecology by Schaffer, with the exception that Pathological Anatomy is so large a subject that it will fill two volumes, of which this is the first. The book is also identical in its scope and apparently belongs to the same series as the Atlas of Clinical Medicine by Jakob, issued by another publisher, which we review in this number of the GAZETTE. Its price is also \$3.

This volume is by far the best of any of the series. The colored plates are unusually well chosen, singularly well executed, and illustrate in a peculiarly lifelike (or to speak

more correctly, a peculiarly deathlike) appearance the pathological changes which have taken place in the various organs of the body. It is evident from the imprint on the plates that they are all imported, and the lithography of Germany and Austria is celebrated the world over for its faithful portrayal of anatomical material. There are few books which are sufficiently good to arouse the reviewer's enthusiasm. This is one of them.

**A LABORATORY TEXT-BOOK OF PATHOLOGY FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE.** By Horace Whitacre, B.S., M.D. Illustrated. Philadelphia: P. Blakiston, Son & Co., 1898.

This book, which is just received for review, has the aim, we are told in the preface, to state in clear terms the principal facts which are needed by the student in working with his microscope in the laboratory. It covers a little over 150 large octavo pages, and almost every page has one or two illustrations taken from micro-photographs, dealing with the tissues which are described in the text. The author is anxious that it should not be considered by the reviewer as an exhaustive treatise on Pathology. He only claims that it is a summary which will be of value to the student in his laboratory work. Some of the illustrations are very good, but that on page 161 representing the pigmented plasmodium malarie in the stage of segmentation is very poor, and that on page 162 is not any better. The text itself, as far as it goes, is clear and to the point. Those who are interested in the teaching of pathology may find that this volume is of use to them, while others who have different methods of teaching will probably find that it does not agree with the course of teaching which they have designed.

**AN ATLAS OF METHODS OF CLINICAL INVESTIGATION.** With an Epitome of Clinical Diagnosis and of Special Pathology and Treatment of Internal Diseases. By Christfried Jakob. Edited by A. A. Eshner, M.D. Profusely Illustrated with Colored Plates. Philadelphia: W. B. Saunders, 1898.

This is an exceedingly useful little manual to the practising physician. The treatise showing areas of various organs in health and disease as they are outlined by the methods of clinical diagnosis are colored and unusually good. There are also very good plates showing the most important color reactions of the gastric juice, and a large number of colored plates showing the condition of the blood in various diseases, of the microscopic particles which are found in the secretions of the mouth, and other cavities of the

body, and finally there is a section of some 200 small octavo pages devoted to the consideration of clinical diagnosis.

Because of the plates the price of the book is necessarily above that usually charged for a volume of this size, namely, \$3.

**ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE.** By Charles E. Sajous, M.D., and One Hundred Associate Editors. Assisted by Corresponding Editors, Collaborators, and Correspondents. Illustrated by Chromo-lithographs, Engravings, and Maps. Volume I.

Philadelphia: The F. A. Davis Company, 1898.

The lack of punctuation on the title-page of this the first volume of the successor of the Annual of the Universal Medical Sciences, a publication which is familiar to most of the profession in this country and abroad, suggests the startling idea that a similar lack of commas and other punctuation marks, if found through the text, would cause the reader some difficulty. An examination of the text, however, shows that it has been more carefully edited and as a rule very well written. The present volume is bound in linen and is pleasing in appearance. It covers 600 pages, the text being printed in double columns, which are a little narrower than those of the THERAPEUTIC GAZETTE. Four styles of type are used—large, black-face type for headings, smaller black-face type for sub-headings, good-sized print for the ordinary text, and a smaller type for references and for text which is not considered particularly valuable.

Therapeutics has been laid aside as a separate department, and the articles on various diseases are followed by articles upon their treatment. Illustrations, as in the old Annual, are exceedingly creditable so far as the chromo-lithographs are concerned, but many of those without colors seriously lack printers' ink. At the beginning of the volume a statement is made of the editorial staff, which consists very largely of those whose names are already familiar to the readers of the Annual, since their functions have simply been transferred from one publication to another.

The present volume extends from Abdominal Injuries to Bright's Disease, which will give some idea of its scope and that of future volumes. To those who have become fond of the arrangement of the Annual as previously published this book will doubtless appear somewhat strange, but through it all the skill of Dr. Sajous as an editor is manifested, and we doubt not that on the appearance of the complete set of volumes

the profession will be even more pleased with the product of his labor than they have been with the monument which he has already erected to himself in medical literature.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P. LOND.

We regret to have to record the death of Sir Richard Quain at his residence in Harley Street on March 13. Though in his eighty-second year he devoted himself to the duties of his profession up to the last few months of his life. Indeed, he transacted from his death-bed much of the business of the General Medical Council, of which he had been an indefatigable President since the year 1891, when he was elected to the presidency on the death of Mr. John Marshall. The attractions of his personality assured to Quain the professional success which he had enjoyed ever since the early years of his career. Yet we should hardly deem him one of those physicians of whom this country should be most rightly proud. Quain was great, not because of any contributions to medical science of first-rate importance, but like Johnson, because of his Dictionary. The editorship of this colossal work was undertaken by him at the busiest period of his professional life, and the thoroughness of the work and the success it has attained are evidence of the fact he spared himself no pains in its compilation. His own principal contributions to the Dictionary were the articles on Angina Pectoris, Diseases of the Bronchial Glands, and Fatty Degeneration of the Heart—the latter subject being one with which his name will always be associated in medical literature. It is estimated that over 50,000 copies of the Dictionary are in the hands of the profession. Quain was never elected President of the College of Physicians, in spite of his untiring energy in its service, and is said to have been keenly disappointed at not securing what he deemed "the blue ribbon of the profession."

The death of Sir Richard Quain vacates the presidency of the General Medical Council. There is a generally felt wish that Sir William Turner, who has already done the duties as deputy, may consent to undertake the office. This, however, would probably necessitate his residence in London, and removal from the Chair of Anatomy in Edin-

burgh; and it remains to be seen whether Sir William Turner will feel himself bound to make these personal sacrifices for the benefit of the profession.

On March 16 the President of the Local Government Board introduced the Vaccination Acts Amendment Bill into the House of Commons. Clause I fixes the age limit within which the child shall be vaccinated at twelve months instead of three months as heretofore, and the parents are not compelled to take the child to the public vaccinator. We certainly approve the longer limit of age, as many children at three months are quite unfit for vaccination; the necessity also of obtaining a certificate of unfitness has certainly disposed some parents unkindly to vaccination. It is also desirable from the side of vaccination, as we shall have much less syphilis attributable to the vaccinator that should rightly have been traced to the parents. Clause II provides that the public vaccinator of the district shall, if the parents wish it, visit the home of the child for the purpose of vaccinating it. This provision of domiciliary vaccination is in response to the recommendation of the Vaccination Committee. With the general use of calf-lymph the necessity for arm-to-arm vaccination is done away with, and the vaccination "center" is to be a thing of the past. Under Clause III, if a child is not vaccinated within nine months after its birth the public vaccinator of the district shall visit the home of the child, and offer vaccination with glycerinated calf-lymph. This seems to us by far the most important innovation of the Bill. In the first place there can be no question of transmission of syphilis by calf-lymph; and further, the multiple secondary infections of the infant with erysipelas, tubercle and other micro-organisms cannot be laid to its charge. The large supply of calf-lymph that will be required will necessitate considerable enlargement of the establishments at which it is prepared, but this has been satisfactorily adjusted by arrangement with the Institute of Preventive Medicine. A further clause abolishes repeated penalties for non-compliance with the Act. Repeated penalties have not been found successful in coercing parents, and have at the same time stirred up much unnecessary antagonism to vaccination. Mr. Chaplin has very properly declined to accept the recommendation of the Commission that any parent who had a conscientious objection to the practice should be excused on making a statutory declaration



to that effect. Such a concession would have made any legislation on the matter of vaccination nugatory. Indeed, it is a matter for apprehension lest the removal of repeated penalties should deprive legislation of much of its compulsory power. The Bill should certainly have gone a step further in securing the welfare of the community by providing for revaccination on the same lines as for initial vaccination. Knowing as we do the limited duration of immunity it is certainly a serious omission that no provision should have been made for encouraging adult vaccination.

Recently records have appeared in several of the medical journals of cases of Addison's disease that have been treated by suprarenal extract. In this country the disease is so comparatively rare that it hardly falls to the lot of any physician to see sufficient cases on which to base a generalization, and one must needs trust the evidence of accumulated records. Two years since Ringer and Phear collected all the cases recorded in medical literature. Speaking generally these fell into two classes, those that derived no benefit from the treatment, and those in which there was temporary improvement of muscular strength, now and again associated with some diminution of intensity of the pigmentation. M. Bécère, a French physician, has recently recorded a case in which improvement only set in five months after commencement of treatment, and was then maintained for three years and still showed no sign of abatement. It seems as though the suprarenal extract exercises some beneficial influence on the healthy residue of suprarenal capsule, possibly inducing hypertrophy; at any rate, it can hardly be that the extract supplies some substance which the disease of the capsules has removed from the economy. Our own experience extends only to three cases: Of these, two were very advanced cases of the disease at the time at which treatment was commenced, and there was no improvement of any kind even in the degree of muscular vigor, and each case ended fatally. The third case is somewhat more promising in that the disease is in an earlier stage, but at present after three weeks of steady treatment there is no apparent amelioration.

I have recently seen in King's College Hospital what must be an almost unique therapeutic triumph. In the first place an hour-glass contraction of the stomach was correctly diagnosed by Dr. Burney Yeo, and in the second place it was operated upon by

Mr. Watson Cheyne with what appears likely to be permanent relief. The history of a gastric ulcer seventeen years ago was quite definite, and the subsequent symptoms pointed very clearly to pyloric obstruction from cicatrization of the ulcer. The points which aided the diagnosis of hour-glass contraction were the excessive distention of the cardiac end of the stomach—a condition which was not present in the pyloric end of the stomach—and on auscultation over the middle of the stomach a gurgling sound could be heard from time to time as though fluid were running through a narrow orifice. The operation performed by Mr. Cheyne was the so-called Heincke-Mikulicz operation. A vertical incision was made over the stomach in the midline about four inches in length, and the stomach drawn out of the wound; it was at once seen that an hour-glass contraction in the middle of the stomach was to be dealt with. The constriction was so tight that a moderate-sized catheter could only just be passed through it. There was a great deal of cicatricial tissue about the constriction, and a complete absence of mucous membrane over its surface. The constriction was then divided transversely, and the incision extended for an inch or more into the healthy tissue on each side of the cicatrized portion. By bringing the extremities of the wound together a considerable addition of space was provided for the passage of food, as in the operation of pyloroplasty. The wound was stitched up first with a row of stitches through the whole coats of the stomach, and then with a row of Lembert's sutures. Mr. Cheyne would have preferred to excise the whole cicatrized portion and unite the divided ends of the stomach, but the condition of the patient was hardly such as to warrant the major operation. The patient from the first made an uninterrupted recovery. For the first few days after the operation rectal feeding was resorted to, but on the fifth day she was fed completely by the mouth. In the first month after the operation she was sick only once, and this was attributable to an error of diet. It is now three months since the operation, and she is steadily gaining weight and suffers very little digestive inconvenience. It will be interesting to see in the course of a year or more what degree of contraction will occur in the neighborhood of the wound.

Dr. Joseph Griffiths read a paper of some interest to the Royal Medico-Chirurgical Society on Microcephaly and its Surgical Treat-

ment. The conclusions which he deduces are as follows: (1) That congenital microcephalic idiots may be divided into two main classes: (a) those with small ill-filled but not deformed skulls; (b) those with small and deformed skulls. (2) In the former class the brain is at fault, being arrested in its development in an early period of embryonic life; in the latter there is in addition to arrested development of the brain evident disease of the cortex, distributed in patches more or less symmetrically, the deformity of the skull being determined by the shape of the brain. (3) There is a hypothetical case in which the skull is prematurely synostosed and the enclosed brain more or less normal, but hitherto no evidence has been brought forward to show that such cases actually occur. (4) Craniectomy in all but the last named (hypothetical) case can be productive of no permanent good, as the original fault is in the cerebrum (or of the whole nervous system) and not in the skull. (5) Where there are symptoms, such as general rigidity of the limbs, etc., which are in all probability due to irritation of the motor cortical centers, then operative interference (trephining or craniectomy) is likely not only to afford amelioration of the symptoms, but in some cases to lead to a substantial and even permanent improvement. (6) Hitherto the mortality from operations has been very high, but with experience it is likely that this will be materially reduced.

In the February number of the *Edinburgh Medical Journal* are some interesting observations by Dr. Campbell Clarke on the Therapeutic Value of Spleen Extract. Briefly he summarizes its therapeutics as follows: "It aids digestion and nutrition, increases the cutaneous circulation, and stimulates the glandular activity of the skin." Dr. Clarke was led to look for some benefit from spleen extract in cases of insanity by the frequency of splenic deficiency in the insane. The first group of cases he submitted to the treatment in the asylum were cases of chronic inertia, mental and physical. Some of the cases seemed to benefit materially, and two cases even appeared to have been cured, but in the larger number the results were negative. In another group of cases where the mental condition was more promising, and had in most instances broken down under some physical strain, such as prolonged lactation, the results were far more prompt and decided. The improvement was at first mainly of the physical condition, but later the mental state followed suit, so that some recov-

ered completely, while others underwent some amelioration. The observation of these two classes of cases served to show that the splenic extract had marked influence on the skin and complexion, and the third group of cases was specially chosen to test its efficacy in this direction. In two cases—one of chronic psoriasis, the other of chronic eczema—the success was rapid and remarkable. It is impossible to detail the cases that came under treatment, but any one will be well repaid by the perusal of this most interesting paper in its entirety. Dr. Clarke commenced his investigations with home-made emulsions of spleen substance in salt solution and glycerin, but subsequently this was substituted by one of the more palatable forms now in the market. These may be had either in the form of tabloids, or of emulsion, or of fluid extract. The emulsion is an ether extract of spleen, and each fluidrachm is equivalent to five grains of extract. The limit of safe dosage seems to be about one drachm three or four times a day. Of the fluid extract one drachm is equivalent to a drachm of fresh spleen, and of this three to four tablespoonfuls may be safely given each day.

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#### PARIS LETTER.

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BY A. R. TURNER, M.D. (PARIS).

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Bacteriology is being studied a good deal by the younger men at the Faculty of Medicine, and Dr. Bezançon, chief of laboratory at the Faculty of Medicine, and Griffon have spoken lately at the Society of Biology on their researches concerning the cultivation of the pneumococcus. Gelose and bouillon are well known to be very poor mediums for pneumococci, as under such conditions they develop tardily and without capsules. Dr. Mosny has proposed rabbit's serum, and Drs. Gilbert and Fournier defibrinated blood. These two mediums are excellent, but are to be used differently. If what one wants is the characteristic appearance of pneumococci, if one wishes to isolate it from other varieties of germs, the serum of rabbit is certainly very useful, but one should choose a young rabbit. The serum of other animals may be used provided they are chosen young. But in case one wishes to keep in a laboratory some pneumococci with all their virulence, the best method is to use blood. The pneumococcus does not grow as well, but can be preserved much longer. To prevent the des-

iccation of tubes in the oven, one should add as much again of ascitic or pleuritic serum. By this method Dr. Bezançon has been able to keep several cultures three to four months. To conclude, it is well to use defibrinated blood as a means of culture and serum of young rabbit as a means of diagnosis.

The serum of Marmorek continues to be examined more or less critically by various members of the medical profession in France. This serum, which is supposed to act in cases of streptococcic infection, has been employed in a number of surgical services, and at the present time is being employed at the Beaujon Hospital in the Maternity Department. Dr. Courmont has, however, insisted upon this fact, that the serum can only act in certain cases of infection, and that the result, good in some cases, may be reduced to nothing in others, according to the variety of streptococci. This serum has also been tried in some cases of erysipelas without proving that it could be counted on as an antitoxin. One can say that the value of Dr. Marmorek's serum is not as yet fully established, and the tendency as shown by what is heard in the hospitals is that further work is needed on the subject.

At the last reunion of the Society of Therapeutics Dr. Linossin cited a case of a woman thirty years old who, under the influence of a dose of twenty-five centigrammes of exalgin taken for an attack of hepatic colic, presented an eruption of bullous erythema appearing on the body as well as on the hands. There was no pruritus, but a sensation of burning in the digestive tract. No fever was observed and no albumen found on examination of her urine. This eruption lasted four days and then disappeared. The well known pharmacologist Bardet made some remarks about this case and said that too much exalgin was given in some cases, and that a dose of ten to fifteen centigrammes only should be given to women.

Dr. Landouzy, professor of therapeutics at the Faculty of Medicine, has been publishing of late in the *Presse Médicale* a series of schematic observations of various medical cases, and giving the rational treatment to be followed out. The first paragraph of each article is given to the description of the case, its symptoms, progress, and termination. The heading of this part of the article shows that therapeutics must be "clinical in their sources of information"—for instance, a case of pachydermic cachexia in a woman sixty years old without any noticeable modification of

the thyroid gland. This condition, as shown by the article, can be mistaken for that produced by asthenia resulting from cardio-renal lesions.

The second paragraph goes to show that the means used must be "pathogenic in their indications." The cause of the disease must be well specified—*i.e.*, lack of thyroid elements—and therefore this is to be overcome by the use of the very element in question.

In the third part the treatment to be used is indicated. It must be "physiological in its means," and therefore one must supply what is lacking—thyroid gland tissue—and also tone up the nervous system perverted by the lack of proper elements.

In the final part of each article, the author describes the various remedies used and indicates minutely what should be done as to hygiene or dietetics. For instance, in the case in point:

1. The former treatment should be suppressed.
2. Each day at every meal ten centigrammes of thyroid gland of sheep should be taken in a capsule.
3. Vigorous rubbing with a flannel glove moistened with lavender alcohol every morning on upper part of body.
4. An enema every morning of 300 grammes of tepid water with ten grammes of borax.
5. Every week a dose of castor oil—twelve grammes.
6. The food taken should consist of milk-soup, eggs, cutlets, sheep's brains, beef once a day, macaroni, dry vegetables (mashed), chicory, boiled lettuce, various custards, cooked fruit, light tea. This treatment is to be modified as improvement sets in.

These short and practical articles seem to be appreciated by the students, as they indicate clearly what should be done in a given case and are up to date.

In a recent number of the *Correspondenz-Blatt für Schweizer Aerzte*, Dr. Huguenin, of Zurich, has published some important information on the hemorrhage seen in tuberculous patients in the first stages. By being able to examine the condition of the lung after death in a certain number of cases he has shown that the characteristic symptoms observed in such cases are due to well-defined bacteriological and anatomical causes. The clinical aspect offered by this variety of patient is sufficiently clear and precise. A tuberculous patient, suffering from a small ulceration of the summit of the lung, has a hemorrhage that lasts about an hour, though

without being intense. The next day the same thing occurs, and there is a continuance of this phenomenon for eight or ten days. This sort of hemorrhage is much more to be feared than the ordinary variety. One can readily understand that the blood effused is aspirated into other parts of the lung, and that on account of its consuming a great number of streptococci and bacilli of Koch it is apt to produce most serious disorders.

In several such cases Dr. Huguenin has been able to observe at the autopsy that the hemorrhage was due to the ulceration of a vein and not that of an artery. On examining the expectoration of patients suffering from this form of hemorrhage, one generally finds a peculiar sort of a clot. This clot is pediculated, irregular in form, and on examination is found to be composed of a series of layers of fibrin. In the center is a cavity containing recent clots. One can therefore consider this formation as being due to a hemorrhage inside a small excavation in the lung, with deposits of successive layers of fibrin on the walls of the excavation. Later the outer layers are attacked by the streptococci, and on account of these being modified the clot is expelled and another hemorrhage takes place.

The treatment of this form of hemorrhage is rather delicate, as coughing is necessary to expel the blood, and on the other hand this is apt to prevent the formation of a clot. Coughing should therefore be diminished without being totally suppressed, and to obtain this small doses of morphine—for instance, five milligrammes thrice daily—may be administered. Mustard plasters, dry and wet cupping and temporary ligation of the limbs may also be useful. Dr. Huguenin does not believe in the use of astringents, such as acetate of lead, tannin, alum, of ice, nor of ergotin. As to the infectious condition due to the presence of streptococci, creosote or its compounds would seem to be of use.

At the Society of Therapeutics Drs. Gallois and Bonnel have advocated the use of oxygenated water in the treatment of continued vomiting in gestation or in consumption. The solution they use is the one containing ten volumes of gas, and this solution should also contain a small quantity of hydrochloric acid to give stability to the preparation. A thing to be remembered is that one should use an active solution, and the best means of recognizing this condition is to deposit a small amount on a piece of iron, when bubbles

will appear and the iron get rusty. The dose administered is one large spoonful dissolved in a liter of water, to be taken in twenty-four hours during meals. This treatment has been of great service, but it has not been clearly proved on what one can base the physiological action of this drug. Is it due to hydrochloric acid acting upon the digestive functions, or rather to a special oxidizing influence of the oxygenated water on various ptomaines, thereby rendering the latter harmless?

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#### BERLIN LETTER.

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By JAMES J. WALSH, PH.D., M.D.

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Of interest in connection with what I said in my last letter in regard to protargol and the use of the silver compounds generally in gonorrhea, is the announcement from Vienna of a new compound of silver and albumin. This will kill, in a test-tube, gonococci in dilutions of 1:4000. Its inventor claims that it will replace protargol.

In the midst of the supreme lack of confidence in drugs that one finds among medical men over here, it is a cause of no little surprise to find that certain remedies whose mode of action is at least doubtful, and which the most refined scientific classification of therapeutic remedies can only bring under the empiric rubric alteratives, enjoy a high reputation among all classes of medical men. The iodides are a type of this class, and all the clinicians are agreed that, apart from syphilis, in all chronic inflammatory processes which have not gone on to actual degeneration, the iodides are efficient in bringing about resolution and involution of the inflammatory exudate. Professor Leyden, for instance, is sure that they do good in fibrous myocarditis and in the arterial conditions which are productive of interstitial myocarditis. Professor Mendel is convinced that he has seen two very striking effects from their use in arteriosclerosis: first, within a very short time after their employment the sharp, clanging second sound of the heart was rendered distinctly softer; second, watching the state of the radial artery carefully for a time showed that after three or four months it became distinctly softer and more elastic to the feel; thus confirming to the coarser sense of touch what the delicate heart mechanism had revealed to the sense of hearing shortly after the beginning of the treatment.

Professor Heubner uses the iodides in all diphtheria cases and finds that the diphtheritic membrane is loosened easier, and thrown off sooner, when it is employed in conjunction with the serum, than when diphtheria serum is employed alone. All of the clinicians are agreed that for aneurismal pains and the sense of persistent tenderness, sometimes amounting almost to dull pains, that occur in connection with aneurism, the iodides are almost a specific. Potassium iodide is not much employed here, the potassium being considered too depressant, so that the combination with sodium is preferred. To children where the iodides seem indicated, the saccharated iodide of iron is given. The iodides are never given in large doses; twenty grains three times a day is considered a good-sized dose for an adult, and more than this is seldom prescribed.

Two good illustrations of the protean forms that drug eruptions may assume have just been reported here. In one case, during the taking of the bromides for some of the symptoms of the climacteric there developed on the face and neck a series of half-spherical nodules, some of them as large as a walnut, and smaller nodules near the margins of the hair. The surface of these nodules was uneven, granular-looking, excoriated, and with a marked tendency to bleeding. The fully developed clinical picture was exactly that of mycosis fungoides. The diagnostic difference lay in the more rapid development of the lesions in the drug eruption, the preliminary stage of erythema being a very short one. In the other case the use of antipyrin, and not in very large doses, was followed on a number of occasions by an erythematous spot an inch or more in diameter, in the right abdominal region. No other cutaneous lesions on any part of the body could be found, though they were carefully looked for. This single symptom was always preceded by an itchy feeling in the anterior abdominal region, extending around to both sides, but limited to the width of a belt.

Here in Berlin one seldom sees malaria. There is scarcely any of the disease in this part of Germany, and what there is occurs in patients who have contracted the disease in other lands. Recurrent neuralgias are, however, not so rare. A neuralgia that returns almost at a definite time every day, or sometimes every second day, or even at longer intervals, yet regularly, is not very uncommon. In a malarial region these would be set down at once as malarial. Here there can

be no question of their being that, yet they are often promptly relieved by quinine. This naturally causes a reversion to the thought of malaria once more, but there is absolutely no reason for it. The cases have been carefully examined just with this object in view, of deciding whether by any possibility there was a malarial element in the cases, but none could be found. It would seem either that the tonic effect of the quinine makes itself felt at once upon the functional disturbance of the sensory nerves, or that, as the old physiological therapeutists believed, there is an absolute anti-periodic effect in quinine which has been allowed to drop out of sight for the present, because the germicidal rôle of the drug in killing the plasmodium malarie has been supposed to be its only effect.

The thirteenth edition of Professor Ewald's book on "General and Special Prescription of Drugs" has just appeared, and is of interest as giving the newer drugs, even the proprietary preparations with their dosage, and their claims to therapeutic attention. The department of organo-therapeutic remedies mentions no less than forty of these preparations that are now on the market—extracts from every organ in the body. For some of them claims are made that far outstrip the wildest therapeutic dreams of the medieval panacea compounders. One very practical firm whose philanthropic aspirations for the relief of long-suffering humanity, especially in certain distinctively *fin-de-siècle* needs, are very evident, has no less than seven testicular preparations for sale. There is dried, powdered bull's testicle, then testinum (dose three to five grains), testidinum (a milder preparation), orchidinum, and sequardinum, besides two supposedly chemical equivalents for testicular extract, representing the active principles of seminal fluid.

Professor Posner's method of testing organo-therapeutic preparations by means of the Ehrlich tri-acid stain, though only in its period of probation, promises to be of distinct help to the practitioner and the dispenser, in enabling them to decide whether preparations really contain and how much they contain of the tissue extracts of various organs. Various tissues and their products seem to give specific characteristic reactions with these stains, and it is hoped that further study will develop the technique of this testing method so as to make it scientifically exact.

Meantime, there is no doubt that certain of the organo-therapeutic remedies are giv-

ing promising results. There is a prominent gynecological clinic here in which oophorin has given excellent results for the nervous symptoms of the climacteric, both the natural one and the anticipated change of life after the removal of the ovaries. Not long ago, in a report to the Berlin Medical Society, Dr. Saalfeld claimed to have got excellent results from it in certain of the skin diseases that develop about the climacteric—the rosacea of cheeks and nose, the obstinate eczemas that sometimes develop at this period, the prurigo and lichenoid eruptions that are met with. Later experience seems to show that oophorin influences favorably the acne and comedones of puberty. In these, where the results are so directly under the eyes, one might think that suggestion did not play a rôle; but it must be simply tried out, I suppose.

Instead of the ordinary incisions around either or both malleoli in arthrectomy at the ankle, some surgeons now employ the Pirogoff incision from malleolus to malleolus, passing underneath the heel. The arthrectomy can be made very completely in this way, and diseased material, judged of by sight as well as touch, can be very thoroughly eradicated. The parts may be better adapted to each other so as to give a useful limb and disposed to heal sooner, as not so much space is left after the removal of necrosed tissues to be filled up at first by blood clot with all its dangers of infection, and later by the slow process of granulations, before the wound is healed entirely. The scar beneath the heel will be of some inconvenience in walking afterwards, but most of this may be obviated by a groove in the heel of the shoe, which will have to be specially made anyhow, and the advantages during and after the operation more than offset this single disadvantage.

#### HONEY POISONING.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I notice in your issue of February 15 that your correspondent, C. D. Voorhees, M.D., mentions a case of poisoning by honey. I have not a copy of Xenophon's *Anabasis* at hand, but I believe that in the last book of that work there is a detailed account of the sufferings of some of the Greek troops who partook of honey shortly after their arrival on the shores of the Euxine. In that case the poisonous agent was probably the "thorn-apple" (*Datura Stramonium*). I have myself seen boys seriously affected after eating the

honeycomb of the bumblebee (*Bombus Terestrus* and *Bombus Lucorum*). This occurred in England, in the county of Nottingham, where the foxglove is a common wild flower, very much affected by the bumblebees. The symptoms were vomiting, violent purging, and pain in the abdomen. The pupils of the eyes were widely dilated, and the pulse irregular and feeble. It has always been an enigma to me how the larvæ of these insects can eat honey derived from such plants as aconite, belladonna and digitalis with absolute impunity, when a very small quantity of the same honey produces marked toxic effects on the human subject.

In Nova Scotia we have very few poisonous plants which bear flowers, consequently poisoning by honey is unknown; but in England it is not at all an uncommon thing for children who have rifled a bumblebee's nest to be affected in the manner I have described. Trusting that I have not trespassed too much on your space, believe me,

Yours truly,

EDMUND JENNER, Apothecary.

SHERBROOKE, NOVA SCOTIA.

\* \*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I wrote you last week in reference to an article on poisonous honey, and since writing I find that the passage I alluded to occurs in Xenophon's *Anabasis*, Lib. iv, cap. xx, ad xxii. Freely translated the chapters run somewhat as follows: "But the beehives were very numerous there, and those of the soldiers who partook of the combs lost all their senses, and vomited, and it passed through them, purging them. . . . Now those who only ate a little were much like drunken men, but those who had eaten much resembled madmen and those who are about to die. . . . And it seemed in the army as if a rout had taken place, but on the following day they recovered their senses at about the hour they were taken ill, and none of them died; and on the third or fourth day they were recovered as if from taking medicine."

Ainsworth attributes this poisoning to honey gathered from the *Nerium Oleander*; other authorities to the *Datura Stramonium*.

I must apologize for troubling you with a second note on the subject. To my mind it is an interesting one, and I was glad to be able to find the passage in question.

Yours truly,

EDMUND JENNER, Apothecary.

# —THE— Therapeutic Gazette.

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## Original Communications.

### THE ADDRESS IN SURGERY—STATE MEDICAL SOCIETY OF PENN- SYLVANIA, 1898.

By W. L. ESTES, M.D.,  
Director and Physician and Surgeon-in-Chief of St. Luke's  
Hospital, South Bethlehem, Pennsylvania.

"Surgery has reached its zenith, and no advances of any value or magnitude may be expected in the future." This remark, said to have been made by a distinguished English surgeon ten years ago, seems ludicrous indeed in reviewing the work done in surgery during the last year alone. This work is so

considerable that I shall not, in the short time allotted to this address, attempt to give more than a sketch of a part of it, and then draw some conclusions which I trust may receive the indorsement of this Society, the members of which are known to be thoughtful students of medical progress and are accustomed to note the trend of scientific endeavors.

The brilliant operation of Schlatter, of Zurich, in successfully removing the whole stomach from a human being, stands perhaps foremost amongst the achievements of the year. As an exhibition of perfection in surgical technique it is remarkable even in this day of asepsis; as a contribution to the physi-

ology of digestion it is more valuable, however. While I do not believe it should set aside conclusively many deductions founded upon Dr. Beaumont's classical experiments on the healthy stomach of Alexis St. Martin, it gives us most important suggestions with reference to the proper status of the stomach, and the unthought-of possibilities of intestinal digestion. This vicarious intestinal assumption of gastric function in Dr. Schlatter's patient was reached only after a long and very gradual process, as the history of the case shows. The stomach of the old woman had at the time of operation been reduced to a small cavity with thick indurated walls; every vestige of glandular tissue was choked by the cancer, so that its sole function at the time of the operation, and probably for some time previously, had been simply to serve as an imperfect passageway for the food into the intestines. What little digestion had been possible was done by the intestines; the stomach was not only the seat of the poison-producing neoplasm, but was entirely cut out of the physiology of digestion. Surgeons who wish to repeat Schlatter's operation should bear this in mind. They ought also to remember that Schlatter's case was unique in that while the whole stomach was involved, the neighboring glands and omentum were not implicated, and the stomach was still freely movable and unattached by adhesions. To find these conditions combined in the same patient must be exceedingly rare.

Another notable instance of ablation and the marvelous adaptability of the gastrointestinal tract was the case of Shepherd.\* In extirpating a thirteen-pound fibromyoma of the mesentery Shepherd was obliged by dense adhesions to remove seven feet and eight inches of the small intestine of a man, who not only made a prompt recovery, but rapidly gained in weight afterwards. Equally remarkable was the operation of Mr. Frederick Treves† in removing the whole descending colon and rectum from a child who had idiopathic dilatation of the colon. Colotomy having failed to relieve the child, about eight months after this operation Mr. Treves did the second operation, which consisted in exsecting the whole colon from its flexure in the left hypochondrium, and the rectum, and then bringing the end of the transverse colon down to the anus and suturing it there.

The result was a complete relief of all the symptoms and a happy recovery of the child.

Hepatic and renal surgery have had a great impetus during the last year. Mayo Robson in England, and Langé, Senn, Halsted, Murphy, and Fenger in this country, have done most excellent work in cholelithiasis, while the labors of Kelly, Weir, Fenger, Gerster and others have done much in advancing the technique of renal surgery.

The impetus given by Kelly in this country, and by Pawlik on the Continent, to ureteral catheterization has led to routine examination of kidneys and ureter separately, and has made it possible to diagnose so surely that many brilliant operations on the ureter and kidneys have been performed. The future promises much for this line of work, and this will result in saving many kidneys and lives.

Besides this most excellent work, Kelly has inaugurated, with the help of Noble and a few other conservative men, an era of conservatism in gynecology. These surgeons now enucleate uterine fibroids or myomata without extirpating the organ itself; they recommend the enucleation of tumors of the broad ligament without sacrificing the ovaries, and even treating puerperal septic metritis without sacrificing the uterus in many cases.

Kelly's demonstration of the possibility of the air-distention method for cystoscopic examinations of the bladders of men is also of great importance.

Dr. J. B. Murphy has shown that it is quite possible to unite divided blood-vessels, and to repair torn vessels without obliterating their lumen or interrupting permanently the flow of blood through them, and he has thus made it possible to preserve important organs or members in case of accidental injury to their principal vessels.

The employment of skiagraphy, which promised much, has been shown to be of limited application, and while most useful in a *restricted employment*, the variability of tubes and currents, to say nothing of the plates used, makes it very difficult to lay down any very helpful and certain rules for the general use of the *x*-rays. Besides, the very disagreeable burns which have resulted from too long exposures indicate that photographic investigations ought in their mechanical parts to be entrusted to a limited number of experts, with fixed, properly tested, and well known apparatus. The fluoroscope, however, is a most valuable agent in employing *x*-rays, even to unskilful operators, and with a little practise it will render fruitful results.

\* *Montreal Medical Journal*, December, 1897.

† *Lancet*, Jan. 29, 1898.



The addition of formaldehyde to the sterilizing armamentarium has proved a valuable acquisition. For sterilizing knives and edged instruments generally (by its vapor) it seems almost an ideal agent; and it will perhaps soon divide honors with dry heat and steam for the sterilization of dressings.

The recrudescence of the very important discussion of how best to sterilize and prepare the hands for aseptic operations has resulted in the adoption very generally of some form of glove. The ideal glove material has yet to be discovered, but thin rubber gloves seem to have the best indorsement at present.

Schleich's general anesthetic mixture, which at first seemed to promise much, has not received the indorsement of American surgeons. In an experience of thirty-eight cases the writer has found that while anesthesia is easier as a rule, and cyanosis is not as common as with ether, vomiting, and especially late vomiting, is just as common and more distressing.

Dr. Willy Meyer in a recent letter published in the *Medical Record* of April 22, 1898, called attention to some investigations made by Dr. Weidig at his (Dr. Meyer's) suggestion, which showed that the ordinary Schleich's mixtures are really *mixtures* and not genuine solutions. The chloroform, petrolic ether, and sulphuric ether partly combine; no free chloroform could be found, but in each of the three solutions free sulphuric ether in varying proportions was found. Dr. Meyer also mentions the fact that Meltzer, who investigated the physiologic effect of pure petrolic ether for him, found that it acts as a tetanizing agent on animals. It may prove not to be the innocent diluent that Schleich believed it was. The mixtures should therefore be used with great caution.

Traumatic surgery has received scant consideration during the last year, and indeed for many years surgical investigations have been confined almost wholly to pathologic surgery. The distinction between "general surgery" and "gynecologic surgery" will possibly soon disappear and the two be merged, but there is gradually developing another special branch of surgery, which may be called "traumatic" surgery. In times of peace this specialty will belong chiefly to surgeons connected with railway, mine and mill hospitals. It is a great pity that this class of surgeons, on account of excessive work and modesty, has not given the profession the

product of its labors and experience in well considered, systematic and comprehensive monographs. The present "little unpleasantness" with Spain may serve to give a fresh impetus to acute surgery, and in the next few years traumatic surgery may again rank amongst the foremost endeavors of our progressive age. It is a great mistake to believe that the "last word has been said" in traumatic surgery. Antisepsis and asepsis have done marvels for conservative attempts, and in lowering the general death-rate after injuries. Of very great importance, in this branch of surgery, is the fact that acute anemia is the dominant factor in ordinary surgical shock. The writer in urging this doctrine about ten years ago gave certain comparative statistics from his own work to emphasize his point. In 1894, in a monograph entitled "A Contribution to the Study of Modern Amputations,"\* this doctrine was again brought forward, and it was shown that by practise founded upon it the mortality-rate in a series of 180 single major amputations (which included seven hip-joint amputations with only one death) was reduced to 2.77 per cent. against his former rate of 7.89 per cent in 114 cases; the double synchronous amputations in twenty-five cases was reduced to 12 per cent. mortality against 46.25 per cent. in thirteen cases after the old practise. Since the publication of the foregoing statistics he has had eighty-four single major amputations and two deaths, a mortality rate of 2.38 per cent., and seventeen multiple amputations and two deaths—11.7 per cent. mortality. In writing some years ago on the mortality-rate of modern amputations the writer stated that he believed the results of the single major amputations ought to be as good as those of the average ovariectomy operations. It seems he has finally realized this result. The argument for the method—if one can call it a method—is that as observation shows by far the majority of deaths after modern amputations occur within forty-eight hours after operation from exhaustion or shock, and as this so-called shock is a condition brought about by acute anemia (great loss of blood), it is had surgery to operate upon a person reduced almost to a moribund condition, when by careful antisepsis and the employment of elastic constriction *over the crushed tissues* no evil is likely to result for thirty or forty hours; and during this time, by the employment of active stimula-

\**Medical Record*, Nov. 3, 1894.

tion by strychnine and saline enemata, the patient may again have his vessels filled by blood and be brought to a condition which will bear a major operation.

The subject in acute or traumatic surgery which has received some commensurate consideration during the last year is fractures. This renewed discussion is probably due to the interest given the subject by the employment of *x*-rays and the comparative accuracy with which the friends of the patient as well as the surgeon may now determine how well the bone has been "set." In this field the writer predicts that radiographs are likely to be disturbing factors as well as useful instruments, and that they will multiply suits for malpractice and damages until a long series of investigations and observations shall prove that it is the exception and not the rule for the surgeon to be able to make exact coaptation and retention of the bony fragments after a so-called simple fracture.

The general tendency of to-day is the simplification of apparatus and the allowance of more freedom of motion and locomotion in the treatment of fractures. Of far greater importance, however, is the gradually growing belief that the majority of so-called "simple fractures" are far from being so indeed, and that explorations by incision and adjustments of fragments by sight are not only justifiable, but in many instances *absolutely essential* for proper treatment. An accumulating array of instances has shown these incisions do not augment the danger when the operation is done with proper aseptic precautions, and that they markedly improve the results of treatment. The *open method* of treating fractures in proper cases is now not only the safe method, but *the proper and imperative method of handling many fractures*.

The most opportune and most suggestive paper of the year was the one read before the Practitioners' Society of New York by Dr. McBurney on "When to Operate." This is a vital question in surgery and one which in many cases is far from settled. This is also a question in which surgeons ought to strive to indoctrinate family practitioners, for upon them in many instances this matter bears most heavily. Many organs and members have been sacrificed, and many lives lost, because the medical man in charge had not made up his mind or did not know *when* to operate. The important discussion on Mr. Marmaduke Shield's paper on "Immunity and Latency after Operations for Cancer of

the Breast"\* before the Royal Medical and Chirurgical Society of England, by such men as Pearce Gould, Watson Cheyne, W. H. Bennett and Fred. Treves shows that the whole question of cancerous invasion, growth, and cure are far from being settled even in the most maturely thoughtful and progressive minds. It is generally conceded nowadays, however, that preceding what may be called the invasion of cancer there is a precancerous stage, and that cure may be confidently expected if the tumor be thoroughly removed during this first stage. This fact ought to be thoroughly established and be received by the whole profession as a matter of the most vital importance. Family physicians should be made to believe that an incipient tumor should at once be submitted to the judgment of a surgeon, and that it is criminal to allow a patient to wait until ulceration or enlarged lymphatic glands declare the growth to be malignant. These pathognomonic signs also declare in many instances the death sentence of the unfortunate patient; they indicate that an extensive operation must be done, and the chances of recurrence at this time are greater than those of thorough eradication.

The removal of benign tumors ought also to be done as early as possible. Constant irritation, growth under pressure, or some dyscrasia of the patient, operate to make simple papillomata, fibroids, and adenomata take on sarcomatous (myxomatous) degenerations, and the border lands are so close that it is rarely ever safe to permit these tumors to develop as they will. It is far simpler, easier and safer to remove these tumors in their very early growth, and it should be done.

The danger of general tubercular infection from a single focus of invasion is too little appreciated by physicians. The persistent enlargement of lymphatic glands, especially about the necks of children, those of diathetic parents especially, should receive early attention, and the knife ought to be used before they break down and suppurate. Inflammations involving the bones of diathetic children, especially a condition suggesting an osteomyelitis, require early and radical operations. Many bones and limbs may thus be saved.

Nowadays intestinal obstruction from any cause, but especially the so-called mechanical ones and those from herniæ, should not be allowed to go on until a "typhoid" condi-

\**Lancet*, Feb. 26, 1898.

tion and fecal vomiting indicate that profound septicemia and gangrene of the gut have taken place. Dr. Fred Kammerer, of New York, has called attention recently to a sign which nearly every surgeon of much experience has noticed, namely, that circumscribed peristalsis which is apparent to the sight at a very much distended point of the abdomen is indicative of complete obstruction. When this sign is observed with the other ordinary signs and symptoms of obstruction no time should be lost in performing an operation.

One would suppose that the much written of subject, appendicitis, had been so thoroughly discussed that little remains to be said on the matter of *when to operate*, and yet I dare say it is the experience of nearly every surgeon in active practise to see the cardinal rules neglected nearly every week. It is so well established that unless a case of appendicitis improves in forty-eight hours an operation is imperative, one is astonished to find so many cases allowed to suffer, and in many instances to die, because this rule is neglected or not known. Furthermore, the very important rule that an operation between attacks ought to be performed after a recurring attack of appendicitis of even a mild (so-called catarrhal) type is entirely too often neglected.

Recent work in renal surgery has shown the great good of early operative exploration and removal of calculi from the pelvis of the kidney. As soon as persistent or recurring pain, and microscopic and chemical examination of the urine, obtained separately by ureteral catheterization, have determined the probable presence of a stone in the kidney, an early removal of the stone will save the organ and restore the patient to health. It is of vital importance to remove a tubercular kidney as soon as the diagnosis can be made and the other kidney determined to be healthy.

Later teaching and clinical experience show the great importance of early operation in obstruction of the bile-ducts—especially the common duct. To wait for persistent jaundice, with frequent rigors, high temperature, and frequent vomiting before determining to operate exposes the patient to fatal septicemia and complicates the operation by inflammatory adhesions, besides the great danger of perforation and general septic peritonitis.

I might continue these instances beyond your patience to hear. I trust I have said enough, however, to suggest to you the very

great importance of recognizing the proper time for operating and how vital it is in many instances not only to *know* this, but to faithfully and firmly practise it. There are a great many conditions unfortunately which remain still in doubt; to the study of these surgeons should now give more attention. In order to know when to operate in any given case it is necessary to fully understand and to appreciate the pathology of the disease or traumatism as well as its clinical history; this feature of surgical investigation is too much neglected, especially in our country.

A recent notice of Stephen Paget's book on John Hunter, which appeared in the *Philadelphia Medical Journal*,\* very aptly sums up what seems to me the lesson to be learned from a review of the year in surgery. It says: "The lesson of Hunter's life was never more needed than to-day, when mechanical conceptions of surgery are so dominant and when technic has so largely replaced pathology." Improved technique has unquestionably widened the bounds of surgery and opened up vistas which to the daring and pushing surgeon seem well-nigh illimitable. The field of the general surgeon is encompassing that formerly sacred to the gynecologist, and now encroaches upon the domain formerly given over wholly to the physician. Are we not going a little too fast? Empirical precedents and undigested observation and experience do not furnish stable groundwork for lasting scientific facts. It seems to me we are in grave danger of outrunning physiologic and pathologic investigations in many surgical attempts. It is time "to cast an anchor to the windward" and wait for proper observations and the careful working out of our present location and bearings. Surgeons, of the United States especially, very much need more laboratories and fewer clinics. Besides the prevalence of "mechanical conceptions of surgery," another serious matter is that the *furor* for operating and the lust for extirpations have taken fast hold upon us. The surgeon who cannot enumerate his cases of organs removed by scores is a beginner indeed, and has but reached the stage where he must rush into print with a new device or "an improved method" for a pusher on the high road leading to his century count! Radicalism has been rampant; it is high time painstaking, thoughtful and scientific conservatism should have a fair chance.

\**Philadelphia Medical Journal*, March 26, 1898.

*A STATISTICAL STUDY OF INTUSSUSCEPTION IN CHILDREN, BASED ON UNREPORTED CASES; TOGETHER WITH THE REPORT OF A SUCCESSFUL OPERATIVE CASE.*

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Cases of intussusception are perhaps best classified under Raffinesque's system as ultra-acute, death taking place in the first twenty-four hours; acute, terminating between the first and seventh day; and subacute, lasting two weeks or upward. Invagination may be enteric, involving the small intestine only, or ileocæcal, the ileum and cæcum, together with the valve, being turned into the colon; ileocolic, the ileum prolapsing through the ileocæcal valve, the latter retaining its proper position till secondary changes—it, together with the cæcum, is more or less displaced; colic, the invagination involving the colon only; and rectal, the seat of trouble being situated entirely within the rectum. Usually the upper segment of gut is received into the lower, but in Leichtenstern's 593 cases the reverse of this condition obtained in 1.5 per cent.

A retrograde intussusception secondary to the descending invagination is not so infrequent. In these cases the intussusceptum is surrounded by five layers of gut. This is probably due to a folding upon itself of the loose intestines and is said to occur only in the colon. It should be remembered that the intussusception may be double or triple.

Of many predisposing causes of intussusception, intestinal trauma (263 cases out of 593), polyp, especially that incident to a sudden jar or jolt, gastro-enteritis, and the straining incident to constipation, should take first rank.

The direct cause of chief importance is an irregularity in the nervous mechanism of the intestines which allows of a sudden spasmodic contraction of a portion of the bowel, while its adjoining conjunction may be entirely relaxed. This will apparently account for the intussusception of agony not rarely encountered in the course of post-mortem examination, and developed probably either during or immediately after the death struggle. These invaginations are often multiple, are limited in extent, and show no inflammatory changes.

The fact that obstructive invagination occurs in children, is associated with colic, is observed after abdominal injuries, and some-

times follows gastro-enteritis or typhoid fever, would all strongly suggest as probable causative factors disordered innervation.

Nothnagel studied this question from an experimental standpoint. By means of a faradic current he actively stimulated a small portion of the bowel; at the point of stimulation the bowel contracted firmly and often slight temporary retrograde intussusception was produced at the relaxed portion of the bowel, which was not influenced by the electric current, slipping down somewhat from above the seat of contraction. From immediately below the seat of firm contraction the bowel ascended in the form of a sheath, which progressively increased until the stimulation was removed, when nervous control being regained the intussusception underwent spontaneous resolution. Nothnagel further asserted that stimulation of the bowel above the intussusception is without effect, but that if an electric current or any sufficient stimulus be applied below this point the parts are promptly restored to their normal condition by the ascending contraction.

These experimental findings would be of very great value could they be corroborated.

Dr. Hare and myself some years ago made a great many experiments on dogs on the lines laid down by Nothnagel. We promptly produced the firm, ring-like contraction of the bowel, to which the current was applied, but observed no attempt at invagination. The stimulation was applied by two cells attached to a Dubois Reymond coil, which was drawn out to twenty on the scale. The segment of bowel stimulated was not upwards of a quarter of an inch in width. The current was used in all strengths and produced a local spasm so pronounced as to make the area stimulated resemble cartilage both in appearance and touch, yet we never observed the faintest attempt at either ascending or descending invagination.

As to the frequency of occurrence, in a total of 1652 cases of intestinal obstruction, hernia excluded, collected by Leichtenstern and Bryant, 657, or approximately forty per cent., were due to intussusception.

Of Leichtenstern's 593 cases, 131 occurred before the age of twelve months, and the great majority of these in the fourth, fifth, and sixth months. This finding is corroborated by the statistics of Smith, Hanson, and Pitts.

Bull and Coley in summing up the reports for 1894 collected twenty-seven cases of intussusception—nineteen males and eight

females. The average age, excluding two children over two years of age, was eight and one-third months.

All statistics show that intussusception in children is most frequent about the sixth month, that after the fifth year it becomes comparatively rare, until the fortieth or fiftieth year, when it again increases in frequency of occurrence. In the first year of life the ileocæcal form is more common than the combined forms of all the others, the ileal invagination being exceedingly rare. When the ileum is involved it is usually in its lower segment. Intussusception of the colon is commonly found in the sigmoid flexure.

The acute form in infants is characterized by a painful onset, commonly in the ileocæcal or umbilical region. After a few hours the child frequently becomes dull and lethargic, with paroxysms of pain and restlessness. Vomiting is practically constantly continuous till shortly before death, and is rarely feculent. It is proportionate to the completeness of obstruction and does not afford the slightest index in its time of onset as to the seat of invagination. Blood-stained mucous evacuations are perhaps more constant and typical than any other single symptom. Of 108 cases of invagination occurring in the first year of life, this symptom was absent in but four. Proportionate to the amount of obstruction the fecal contents of the evacuations diminish, mucus and blood forming the greater portion. This discharge is commonly very offensive. Not infrequently there is diarrhea and evacuation of blood-stained feces throughout the entire attack. This is, however, rather characteristic of the chronic than of the acute form.

Tumor, the most diagnostic symptom of invagination, was felt in sixty-three per cent. of Leichtenstern's infantile cases. It was usually found in the left iliac region either by abdominal palpation or better still by combined palpation, the index-finger of the right hand being passed deeply into the rectum, while the fingers of the left hand palpate through the abdominal parietes. In ileal invagination this tumor may be absent. It is commonly sausage-shaped and varies in size and consistency from time to time, becoming hard, knotty and plainly perceptible during a paroxysm of pain and shortly after eluding the most careful search. Tenesmus is a symptom sufficiently common to be of diagnostic import. It is present in complete obstruction, and according to Brinton is especially

characteristic of ileocæcal and colon invaginations.

A further sign of some importance, although it occurs in other forms of intestinal obstruction, is a patulous condition of the anus, due to paralysis, and according to Leichtenstern dependent upon invagination of the descending colon and rectum. This is not noted in the ileum invaginations.

These symptoms would seem to be fairly characteristic, but in the absence of tumor it must be acknowledged that unless the others are all typically developed they will not enable the practitioner to distinguish between a severe case of enteritis and one of intussusception.

There can be no question that many cases of intussusception are not recognized. I am not aware of any reported cases showing that an error in the other direction—*i.e.*, the mistaking of a severe case of enteritis or colitis—has resulted in an operation for the reduction of supposed invagination. It is probable that examination under ether will show a tumor in practically all cases.

The prognosis of intussusception is extremely grave. Leichtenstern places the general mortality as seventy-three per cent. In seventy-three cases collected by Hare and myself in 1889 the mortality was ninety per cent. In the first year of life the mortality is very high, reaching eighty per cent., death commonly occurring between the fourth and seventh days. Bull and Coley found the mortality of twenty-seven cases collected in one year was thirty-seven per cent.

Wiggin states that intussusception occurring in young infants is a hopeless condition when left to Nature's care: ninety-eight per cent. terminating fatally when the immediate and remote effects of sloughing are considered.

The methods of treatment to be considered are massage, rectal injections, and reduction of invagination through an abdominal opening. Though massage has successful cases credited to it, it is at best a blind and usually futile measure and one likely to do more harm than good. Injections are, however, of incontestable value, and in so far as statistical study goes have been nearly as successful as has abdominal section.

The injection may be of air or of liquid. Injections of air are less easily controlled, and are lacking in the mechanical weight of a liquid injection, this latter factor being often an important adjunct in the reduction of an invagination. Injections of liquid,

aside from direct surgical intervention, afford the most efficient means of reducing invagination.

The liquid of choice should be normal salt solution at a temperature of 102° F. The temperature is important. As a result of experimentation Hare and I found that by a pressure of one and a half pounds warm normal saline solution could be passed from the rectum into the stomach of a dog without interfering with its vital functions in the slightest degree, and without being followed by any impairment in digestion or general health. A cold solution produced marked and immediate shock, was much slower in going through, and left the dog sick for some hours. The hot injections at 116° F. caused death from heat-stroke.

As to the method of giving a forced injection, the pathology of intussusception teaches us that disinvagination becomes more difficult as time elapses from onset of symptoms, hence every hour diminishes the chances of success. When the invagination is less than forty-eight hours old, and in this time sloughing or marked weakening of the bowel is extremely rare, the child should be wrapped in cotton, ether should be given to its full surgical extent, producing complete relaxation of the muscular system, and by means of a fountain syringe normal saline solution at a temperature of 105° should be allowed to flow into the rectum at the rate of about four ounces a minute under a pressure of not over two pounds to the inch, obtained by elevating the irrigating bag four feet, the liquid being retained by a shoulder upon the injection pipe, readily made by wrapping it with a narrow bandage. During this injection the child should be inverted, the abdomen should be kneaded, the operator endeavoring to grasp the sausage-shaped tumor in its lower part and to squeeze it out by a motion much like that made in milking a cow.

This treatment should be continued for not less than fifteen nor more than thirty minutes, the bag being gradually raised until a pressure not greater than four pounds is produced. The pressure of the fluid should be gradual, steady, and progressive. The first effect of the injection is to occasion muscular spasm. This yields completely to steady pressure. The quantity of fluid used should be limited. Mole has shown that the infantile colon will be completely filled by a pint and a half. I believe that in some cases twice this quantity can be used without danger, but since we can never be sure that the

bowel is perfectly healthy, it is perhaps wisest to limit the quantity to a quart. As to the pressure employed I have been able to subject the healthy gut of a child, removed from the body, to a pressure of five pounds, without causing injury to the peritoneal coat. When the bowel is supported by parietes and surrounding viscera it is evident it could readily stand considerably greater pressure. In the light of other experiments and in consideration of the fact that in intussusception the gut is never quite healthy, four pounds should be the extreme limit, a patient trial being first made of an elevation of three or four feet (1½ to 2 pounds).

This trial at forced reduction must be thorough and final. There must be no idea that it is to be repeated with more care and attention to detail. Every hour of delay makes the efforts at reduction less likely to succeed. If it fails immediate operation should be undertaken. I believe it would be wise before making this attempt at disinvagination to complete all preparations for section and to proceed at once to this measure when a careful trial of the injection has proven abortive.

Success from injection will be shown by disappearance of tumor and by sudden flow of the contents of the irrigating vessel, which should be of glass and graduated.

In operating the median incision is probably the one of choice. It is to be carried up above the umbilicus in case of need. The invagination will be found immediately and without difficulty. The first effort should be directed toward accomplishing disinvagination. This is best accomplished by stripping back the intussusciens by a milking motion practised with both hands; traction upon the intussusceptum, excepting an amount just sufficient to afford support, is unjustifiable. A probe slipped between the entering and returning layers may loosen adhesions so that the intussusciens may be stripped inch by inch.

If reduction can be accomplished in this way the question as to so fixing the bowel that the intussusception cannot be reproduced may be wisely considered.

This may be accomplished by a stitch securing the gut to the parietal peritoneum, though the efficacy or even necessity for this procedure is certainly questionable. If the intussusception cannot be reduced a longitudinal slit of the intestines, delivering of the intussusceptum, transfixing with pins, the removal of the portion distal to the pins and

suture of the divided ends, is the method recommended; the sutured ends being then returned into the lumen of the gut, and longitudinal incision being closed by Lembert suture. The operation is completed by a row of Lembert sutures uniting the intussusciens to the intussusceptum at a point where the latter enters the former.

This sometimes implies a large opening into the intussusciens, the delivery and handling of an extensive sloughing, thoroughly infected mass, with a somewhat tedious suture at a period of the operation when time is of vital importance. I believe this, which is Maunsell's operation, might be wisely modified by applying a continuous Lembert suture, uniting the intussusciens and intussusceptum at the point of junction; a one inch incision should then be made an inch below this circular suture through the convex border of the intussusciens. A ligature should be passed around the intussusceptum at a point above the area of sloughing and gangrene, should be tied tightly, and the whole mass below should be cut away. The ligature with the divided bowel ends should be drawn through a small opening, transfixed with pins and sutures as in Maunsell's operation. In this case the difficulties and dangers incident to delivery and proper care of the sloughing intussusceptum might be avoided.

Intussusception is usually regarded as a common affection of childhood, but I have been particularly impressed with its extreme rarity. As far as I have been able to discover but one case has ever been treated at the Children's Hospital of Philadelphia. Examinations of the records of other institutions reveal a similar paucity of material.

Eight hundred personal letters sent out with stamped and directed return envelope brought me only fifty-four cases. The great majority of these letters were answered. Men of the widest experience, both in medicine, surgery, and in pediatrics, stated that they had never seen a case. My purpose in sending these letters was not primarily to demonstrate the rarity of intussusception, but rather to demonstrate its true mortality. There is a natural tendency to report only successful cases, and believing that this rendered entirely inaccurate statistics compiled from general records, I started a personal investigation, confidently expecting to have several hundred cases from which could be drawn reliable conclusions. The form in which the inquiries were sent out is as follows:

#### INTUSSUSCEPTION IN CHILDREN UNDER TWELVE YEARS.

Seen by Dr..... In personal practise..... In consultation..... Age of patients..... Cause of intussusception (polyp?)..... Symptoms—Tumor..... Passage of bloody mucus..... Tenesmus..... Vomiting..... Intense pain..... Treatment—Medical..... Result..... Mechanical (Injection of air..... water..... Massage.....) Result..... Period elapsing from first symptom to mechanical treatment..... Treatment—Operative (disinvagination through abdominal opening.....) Result..... Resection..... Result..... Seat of invagination..... Amount of bowel resected..... Method of joining intestines..... Period elapsing from the first symptom to the time of operation..... Results of autopsies.....

Further details not covered by the above headings will be gladly received, such as recovery with passage of slough, etc.

It is worthy of note that in addition to personal letters, through the courtesy of the THERAPEUTIC GAZETTE, *Journal of the American Medical Association*, the *Boston Medical and Surgical Journal*, the *Medical News*, and a number of other medical journals in various parts of the country, I am indebted for some extremely interesting cases. The small number tabulated as a result of this inquiry shows the rarity of the affection. (See Table.)

The average age of the patients thus collected, representing hitherto unpublished cases of intussusception in infants, was thirty-four months. Much larger published statistics seem to show that the age at which the affection is most common is about six months. The youngest patient on my list was two days old (case reported by Dr. Barton C. Hirst). The next youngest was four weeks old (reported by Dr. Walter Chrystie, of Bryn Mawr, Pa.).

Tumor was present in forty cases, absent in seven, not mentioned in twelve. Excluding the last figures it was observed in eighty-five per cent. of cases. Muco-sanguineous discharges were present in forty-six cases, absent in thirteen—seventy-eight per cent. Tenesmus was present in forty-three cases, absent in eight, not mentioned in eight—85.6 per cent. Vomiting was present in fifty-seven cases, absent in eight—86.4 per cent. Pain was present in forty-five, absent in nine, not mentioned in five—86.5 per cent.

It will be noted that all these symptoms were present in a large majority of cases, but that the least constant one was the discharge of blood-stained mucus.

As to the gross results of treatment, of four cases subjected to treatment other than mechanical, one recovered by sloughing. Fifty-three were treated by air or water injections; of these thirteen were subsequently subjected to celiotomy. Of the forty not

| REPORTER.                | Age.    | Cause.             | Tumor. | Mucousanguineous discharges. | Tenismus. | Vomiting. | Pain. | Medical. | Air Injection. | Water Injection. | Massage. | Time elapsing from first symptom to mechanical treatment. | Operative dissection. | Resection of gut. | Time elapsing from first symptom to surgical treatment. | Result.   |
|--------------------------|---------|--------------------|--------|------------------------------|-----------|-----------|-------|----------|----------------|------------------|----------|---|-----------------------|-------------------|---|-----------|
| 1. H. M. Christian...    | 2 yrs.  | .....              | No.    | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | Yes.     | 2 or 3 days.  | .....                 | .....             | .....   | Death.    |
| 2. H. M. Christian...    | 4 yrs.  | Polyp.             | No.    | Yes.                         | Yes.      | Yes.      | Yes.  | No.      | No.            | Yes.             | Yes.     | 2½ days.  | .....                 | .....             | .....   | Death.    |
| 3. W. O. Bridges...      | 3 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | 2 or 3 days.  | .....                 | .....             | .....   | Recovery. |
| 4. J. P. C. Griffith...  | 5 mos.  | Dysentery.         | No.    | Yes.                         | Yes.      | No.       | No.   | Yes.     | No.            | Yes.             | No.      | 2 or 3 days.  | .....                 | .....             | .....   | Death.    |
| 5. H. A. Arnold...       | 9 yrs.  | .....              | No.    | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | 7 days.   | .....                 | .....             | .....   | Death.    |
| 6. M. G. Sloan...        | 4 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | .....    | Less than 1 day.  | .....                 | .....             | .....   | Recovery. |
| 7. M. G. Sloan...        | 8 mos.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | .....    | 3 days.   | .....                 | .....             | .....   | Death.    |
| 8. C. W. Collins...      | 1 yr.   | Sudden jar.        | .....  | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | Yes.     | 1 day.  | .....                 | .....             | .....   | Recovery. |
| 9. W. Christy...         | 4 yrs.  | .....              | .....  | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | Yes.     | .....   | .....                 | .....             | .....   | Recovery. |
| 10. W. M. Welch...       | 1 yr.   | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | .....   | .....                 | .....             | .....   | Recovery. |
| 11. Lewis Burton...      | 3 yrs.  | .....              | No.    | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | .....    | .....   | .....                 | .....             | .....   | Death.    |
| 12. G. W. Guthrie...     | 8 mos.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | 2 or 3 days.  | .....                 | .....             | .....   | Death.    |
| 13. G. W. Guthrie...     | 2 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | 2 or 3 days.  | .....                 | .....             | .....   | Death.    |
| 14. G. W. Guthrie...     | 2 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | 2 or 3 days.  | .....                 | .....             | .....   | Recovery. |
| 15. J. M. Anders...      | 2 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | 1 day.  | .....                 | .....             | .....   | Death.    |
| 16. J. C. Sexton...      | 2½ yrs. | .....              | Yes.   | No.                          | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | .....   | .....                 | .....             | .....   | Recovery. |
| 17. J. C. Sexton...      | 4 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | 3 days.   | .....                 | .....             | .....   | Recovery. |
| 18. H. Leaman...         | 4 yrs.  | .....              | .....  | Yes.                         | Yes.      | No.       | No.   | Yes.     | No.            | Yes.             | No.      | Few hours.  | .....                 | .....             | .....   | Death.    |
| 19. H. Leaman...         | 4 yrs.  | .....              | .....  | Yes.                         | Yes.      | No.       | No.   | Yes.     | No.            | Yes.             | No.      | Few hours.  | .....                 | .....             | .....   | Death.    |
| 20. H. Leaman...         | 6 yrs.  | .....              | .....  | Yes.                         | Yes.      | No.       | No.   | Yes.     | No.            | Yes.             | No.      | Few hours.  | .....                 | .....             | .....   | Death.    |
| 21. H. Leaman...         | 6 yrs.  | .....              | .....  | No.                          | Yes.      | No.       | No.   | Yes.     | No.            | Yes.             | No.      | Few hours.  | .....                 | .....             | .....   | Death.    |
| 22. H. Leaman...         | 6 yrs.  | .....              | .....  | No.                          | No.       | No.       | No.   | Yes.     | No.            | Yes.             | No.      | Few hours.  | .....                 | .....             | .....   | Death.    |
| 23. H. Leaman...         | 6 yrs.  | .....              | .....  | No.                          | No.       | No.       | No.   | Yes.     | No.            | Yes.             | No.      | 2 days.   | .....                 | .....             | .....   | Death.    |
| 24. R. M. Geroin...      | 13 mo.  | .....              | No.    | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | Yes.     | 20 hours.   | .....                 | .....             | .....   | Death.    |
| 25. T. G. Morton...      | to mo.  | Prob. stricture.   | Yes.   | No.                          | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | Yes.     | 2½ days.  | .....                 | .....             | .....   | Recovery. |
| 26. J. M. Brown...       | 4 yrs.  | Button.            | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | 12 hours.   | .....                 | .....             | .....   | Recovery. |
| 27. T. Longaker...       | 6 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | .....   | .....                 | .....             | .....   | Recovery. |
| 28. D. Rove...           | 9 mos.  | Dandling.          | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | 8 days.   | .....                 | .....             | .....   | Recovery. |
| 29. R. G. Curtis...      | 15 mo.  | Gastro-enteritis.  | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | .....   | .....                 | .....             | .....   | Death.    |
| 30. Hugo Engel...        | 6 yrs.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | No.      | 2 days.   | .....                 | .....             | .....   | Recovery. |
| 31. S. Solis Cohen...    | 8 4     | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | No.      | 4 hours, 2 days.  | .....                 | .....             | .....   | Recovery. |
| 32. S. Solis-Cohen...    | 2 5     | .....              | Yes.   | No.                          | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | .....    | 4 hours, 2 days.  | .....                 | .....             | .....   | Recovery. |
| 33. S. Solis-Cohen...    | 2 5     | .....              | Yes.   | No.                          | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | No.      | 4 hours, 2 days.  | .....                 | .....             | .....   | Death.    |
| 34. S. Solis-Cohen...    | 1 5     | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | No.      | 4 hours, 2 days.  | .....                 | .....             | .....   | Recovery. |
| 35. S. Solis-Cohen...    | 1 5     | .....              | No.    | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | No.      | 4 hours, 2 days.  | .....                 | .....             | .....   | Recovery. |
| 36. E. P. Bernardy...    | 15 mo.  | Constip. & strain. | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | Yes.     | 120 minutes.  | .....                 | .....             | .....   | Death.    |
| 37. Charles Schaper...   | 8 mos.  | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | Yes.     | 24 hours.   | .....                 | .....             | .....   | Recovery. |
| 38. J. F. Baldwin...     | to mo.  | Whooping-cough.    | .....  | No.                          | No.       | Yes.      | ..... | .....    | .....          | .....            | .....    | 3 or 4 days.  | .....                 | .....             | .....   | Death.    |
| 39. J. H. Musser...      | under   | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | .....    | 6 hours.  | .....                 | .....             | .....   | Death.    |
| 40. B. C. Hirst...       | 1 yr.   | .....              | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | .....    | .....   | .....                 | .....             | .....   | Death.    |
| 41. B. C. Hirst...       | 2 yrs.  | .....              | .....  | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | .....          | .....            | .....    | .....   | .....                 | .....             | .....   | Death.    |
| 42. J. P. Srittmatter... | 4 mos.  | Diarrhea.          | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | 4 hours.  | .....                 | .....             | .....   | Recovery. |
| 43. J. P. Srittmatter... | 8 yrs.  | Diarrhea.          | Yes.   | No.                          | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | No.      | 9 hours.  | .....                 | .....             | .....   | Death.    |
| 44. C. J. Hobale...      | 7 mos.  | Coughing.          | Yes.   | Yes.                         | Yes.      | Yes.      | Yes.  | Yes.     | No.            | Yes.             | Yes.     | 10 hours.   | .....                 | .....             | .....   | Death.    |

Inversion, massage and water injection on this attempt; relief sudden.

Sudden pain following high jump.

Enemata partly successful; autopsy showed reduction would have been easy with operation. Tumor on left side; condition unfavorable for operation. Fecal vomiting. Treatment—high enemata and massage—not immediately successful. Recovery a surprise.

Air injection by old-fashioned bellows attached to hose.

Water injection failed; air under chloroform; sudden and complete relief. Tumor on right side. Third attack. Tumor right side; air and water under chloroform failed; anesthetization for operation; final water injection under heavy pressure suddenly reduced.

Replacement of gut by gravity and taxis.

Softening of tumor mass and discharge of button. Tumor on right side; injection of acid carbonic from inverted siphon. Tumor on right side; sudden onset while being dandled; recovery by sloughing of 8 inches of gut.

14 inches of gangrenous intestine passed by bowel.

(In babies under three months suffering from gastro-intestinal catarrh, partial intussusception readily reduced by pushing back with catheter and warm oil.

Inversion; water injection; massage under chloroform. Ileocolic.

Symptoms in less than 24 hours from birth; death in 48 hours; intussusception of ileum; bowel nearly gangrenous.

Air succeeded when water failed.



## OPERATIVE CASES.

| REPORTER.                  | Age.        | Cause.            | Tumor. | Muco-sanguineous discharge. | Tenesmus. | Vomiting. | Pain. | Medical. | Air Injection. | Water Injection. | Massage. | Time elapsing from first symptom to mechanical treatment. | Operative disinvagination. | Resection of gut. | Time elapsing from first symptom to surgical treatment. | Result.   |   |
|----------------------------|-------------|-------------------|--------|-----------------------------|-----------|-----------|-------|----------|----------------|------------------|----------|---|----------------------------|-------------------|---|-----------|---|
| 1. J. H. Musser.....       | under 1 yr. | Polyp.            | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | .....    | 6 hours.  | Yes.                       | Yes.              | 8 hours.  | Death.    | Ileum-gut gangrenous and irreducible; resection 18 inches and artificial anus; death in four hours. |
| 2. J. F. Baldwin.....      | 6 yrs.      | .....             | Yes.   | No.                         | No.       | No.       | No.   | .....    | .....          | Yes.             | .....    | 5 days.   | .....                      | .....             | 4 hours.  | Death.    | Tumor to left; ileocecal.   |
| 3. E. J. Gregg.....        | 5 yrs.      | Coughing.         | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | Yes.     | .....   | Yes.                       | No.               | 8 hours.  | Recovery. | Tumor to left; ileocecal.   |
| 4. C. J. Hoban.....        | 7 mos.      | Polyp relaxation. | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | .....    | .....          | Yes.             | Yes.     | 24 hours.   | Yes.                       | .....             | 20 hours.   | Recovery. | Ileum into cæcum; tumor to right; abdomen packed with gauze for five days.                          |
| 5. B. C. Hirst.....        | 14 mo.      | Rectal prolapse.  | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | Yes.     | Yes.           | Yes.             | No.      | .....   | Yes.                       | .....             | 36 hours.   | Recovery. | Small intestine.  |
| 6. J. P. Strittmatter..... | 3 yrs.      | .....             | No.    | Yes.                        | Yes.      | Yes.      | Yes.  | .....    | .....          | .....            | .....    | .....   | Yes.                       | .....             | .....   | Death.    | Ileocolic; through the valve.   |
| 7. W. W. Keen.....         | 6 mos.      | .....             | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | .....    | .....          | Yes.             | No.      | .....   | Yes.                       | .....             | 24 hours.   | Death.    | Tumor to left; death from shock after normal bowel movement.  |
| 8. M. Price.....           | 2 yrs.      | .....             | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | .....    | .....          | Yes.             | No.      | .....   | Yes.                       | .....             | 36 hours.   | Death.    | Dr. Agnew operated.   |
| 9. M. Price.....           | 4 yrs.      | Enteric cath.     | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | .....    | .....          | Yes.             | Yes.     | 12 hours.   | Yes.                       | .....             | 3 days.   | Death.    | Impossible to reduce invagination; abdomen closed; death from shock in three hours.                 |
| 10. J. B. Walker.....      | 5 mos.      | Diarrhea.         | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | No.      | No.            | Yes.             | .....    | 20 hours.   | Yes.                       | .....             | 20 hours.   | Death.    | Ileocecal.  |
| 11. T. C. Potter.....      | 3 yrs.      | .....             | Yes.   | Yes.                        | Yes.      | Yes.      | Yes.  | .....    | .....          | .....            | .....    | .....   | Yes.                       | .....             | .....   | Death.    | Resection—ileal.  |
| 12. J. B. Brickell.....    | 16 mo.      | Errors diet.      | Yes.   | Yes.                        | .....     | No.       | Yes.  | Yes.     | .....          | Yes.             | .....    | 30 hours.   | Yes.                       | .....             | 30 hours.   | Recovery. | Lateral approximation—small intestine.  |
| 13. J. B. Murphy.....      | 6 mos.      | .....             | Yes.   | Yes.                        | .....     | Yes.      | Yes.  | No.      | Yes.           | Yes.             | Yes.     | .....   | No.                        | Yes.              | 18 hours.   | Death.    |   |
| 14. J. B. Murphy.....      | 13 mo.      | .....             | Yes.   | No.                         | .....     | Yes.      | Yes.  | No.      | Yes.           | Yes.             | Yes.     | .....   | No.                        | Yes.              | 2 days.   | Recovery. |   |
| 15. J. B. Murphy.....      | 19 mo.      | .....             | No.    | No.                         | .....     | Yes.      | Yes.  | No.      | Yes.           | Yes.             | Yes.     | .....   | No.                        | Yes.              | 3 days.   | Death.    |   |

operated on, but treated by water or air injections, seventeen recovered, a mortality of 42.5 per cent. It is noteworthy that one case subjected to water injection and unimproved was cured by subsequent injection of air.

Of the fifteen cases operated on two recovered, a mortality of 86.6 per cent.

As to the causes of invagination, polyp is mentioned in three cases, stricture in one case, foreign body in one case, jarring in two cases, enterocolitis in eight cases, constipation in one case, and coughing in four cases. It is worthy of note that trauma seems to be an important factor in the production of invagination, and that in some instances bouncing of the child, such as is commonly done in play, has been stated by the physician to be the direct cause.

The two cases which I personally observed both occurred in the practise of Dr. C. J. Hoban. One was hyperacute in type, exhibited all the characteristic symptoms, excepting tumor, and perished practically before any active treatment could be instituted. At the time I saw this child it was pulseless, with cold limbs, pallid face, sunken eyes, and evidently moribund. The time for surgical intervention was past, and indeed the child died five minutes after we left the house.

The second case occurred in the person of a child seven months old. There was no history of previous illness. The child was suddenly seized with acute pain, which caused it to scream violently; it passed blood-stained stools and vomited persistently. Tumor was felt in the left iliac fossa and also on digital examination in the rectum. Dr. Hoban, seeing the nature of the affection, sent the child to the Howard Hospital, where four hours after the onset of symptoms I made one conscientious and thorough attempt at reduction by water enema. The child was etherized; the bag was elevated to a height of eight feet, pressure being maintained for fifteen minutes. The tumor apparently disappeared. The enema was followed by a copious blood-stained mucous discharge. On digital examination by the rectum the invagination could no longer be felt. By bimanual palpation, however, a distinct tumor was plainly perceptible in the left iliac region. The pulse was 160, the respirations 40. Operation was at once decided upon and performed Monday morning, December 5, 1896. The invagination was an ileocolic type, six inches of the small

intestine and the ascending and transverse colon forming the intussusceptum. Reduction first seemed difficult, but peeling back the intussusciptions, the intussusception being slightly separated, the gut rolled into its normal position. This process having once been fairly started, it was completed without difficulty. The intestine was in fairly good condition, the peritoneum being eroded under one or two spots, presenting a raw, intensely congested, bruised appearance. The incision was four inches long and extended obliquely forward from the left toward the right side, the umbilicus being at about its upper third. It was closed by through-and-through suture of silkworm-gut, as the child's condition was such that speed was necessary. The operation occupied twenty minutes. The following day the pulse ran to 180, the temperature to 103½°. There were, however, three free loose bowel movements, containing very little mucus and blood, the passage of a large quantity of wind, and after the second movement the pulse fell to 138. The child was stimulated and treated on general principles, being given castor oil, and calomel was required. On the seventh day I removed the stitches from the perfectly clean wound, carefully reinforcing by surgeon's plaster as each thread was taken out. A large, clean dressing was applied over the abdomen. The whole was held in place by two broad strips of plaster designed to lessen tension upon the womb. The mother of the child celebrated the removal of the stitches by giving it an unusually heavy meal, which caused vomiting. During these violent vomiting motions the whole wound burst open, and some hours later I found lying beneath the dressing and between it and the abdominal skin the greater portion of the small and large intestines. The child was again etherized, the intestines were replaced, and a double row of sutures was applied. This second operation was followed by no shock, nor was there any inflammatory reaction. The stitches were left in place for eighteen days. On their removal there was no tendency to further opening of the wound, and the child has subsequently been perfectly well, with the exception of one sharp colic attack. It is now about eighteen months since intervention.

The only other case of successful surgical intervention is one operated on by Dr. J. B. Murphy. In his case eighteen hours had elapsed between the development of symptoms and operation.

In considering these figures—representing the result of computation from a tabulation of unpublished cases, mainly infantile—it is noteworthy that the gross mortality of Leichtenstern's non-surgical cases is much greater than in my table—*i.e.*, 73 per cent. as contrasted to 42.5 per cent. The mortality of the operative cases which I have been able to collect is, however, somewhat higher than that computed from any hitherto published tables. Thus Holt (*Diseases of Infancy and Childhood*) notes that the mortality of seventy-two operative cases was 80.5 per cent. Schramm computes the mortality at 70.4 per cent.; Ashhurst, on a basis of 133 cases, as 76.5 per cent.; Treves, 33 cases, as 72.7 per cent.; Wiggin, on a basis of 74 cases, 58.1 per cent.; Barker, on a basis of 73 cases, 82 per cent.

It is evident that the mortality of the cases operated on is greater than that of the cases subjected to mechanical treatment, and that so long as operation is reserved for desperate cases, and as the final resort after hours or days of fruitless medicinal and mechanical treatment, only by the most ingenious juggling with statistics can the surgeon find support for intervention in the study of tabulations. It is none the less perfectly clear that were intervention instituted at once on the first failure of one thorough effort at reduction under an anesthetic, the now high mortality of the affection (probably over fifty per cent.) would be markedly lowered.

The conclusions which seem justifiable from a study of infantile intussusception are:

1. The affection is a rare one in any one locality or in any individual experience. The general impression among medical men to the effect that it is common has not the support of either hospital records, vital statistics, or personal inquiry.

2. Gastro-enteritis is a distinct predisposing factor.

3. The diagnosis of infantile intussusception from severe entero-colitis in the absence of tumor may be quite impossible. Fortunately tumor is present in over eighty per cent. of cases. Often it has not been found because search has not been made for it. Sudden and violent onset, frequent small blood-stained mucous passages, and the rapid minimizing of the quantity of feces passed, would suggest intussusception. Under such circumstances palpation should be practised, one finger being passed into the rectum, the other fingers of the other hand being applied to the abdominal surface. When there is

reasonable doubt the child should be relaxed by ether before such examination is made. The tumor is not necessarily on the left side, being found in a small percentage of cases to the right.

4. The first attempt at reduction should be thorough and final. This is most likely to be successful if practised upon the thoroughly anesthetized child. The method of choice is the slow injection of normal saline solution by gravity at a temperature of about 102° F. and under a pressure of at first four feet—not greater than eight feet after ten to fifteen minutes. Inversion and gentle massage aid in accomplishing reduction.

5. Reduction by injection should not be attempted in hyperacute cases which have lasted more than twenty-four hours, nor in acute cases which have lasted twice this time. Immediate operation is safer for such cases.

6. Reduction by injection having failed, there should be immediate recourse to celiotomy and direct disinvagination, or if this procedure is impossible, ligation and resection of the adherent and sloughing mass practised through a small incision through the intussusciens, and union of the divided bowel as in the Maunsell method. The portion of the gut cut away may be delivered through the anus.

#### *THE SURGICAL TREATMENT OF COMMON DEFORMITIES OF THE FACE.\**

BY JOHN B. ROBERTS, M.D.,

Professor of Surgery in the Woman's Medical College of Pennsylvania.

The effect of facial disfigurement upon the earning capacity of an individual is generally recognized. Those desiring positions as household servants, nurses and salesmen are rejected at once if unsightliness of feature is at all conspicuous; and they may be refused by hypercritical employers when the want of comeliness is not great.

Facial blemishes sufficient to produce these results are likely to be subjected to surgical treatment in most urban communities; there the popular mind has become familiar with the resources and safety of surgical science. In more sparsely settled districts, however, and in cities of less advanced culture, men and women are frequently seen with most hideous deformities, which could easily be removed or greatly lessened by simple and innocuous surgical procedures.

The effect of physical deformity upon the mental characteristics of the afflicted individual is often most deleterious. The timidity and consequent social ostracism, due to even very slight facial blemishes, are only fully realized by those whose professional activities bring them into contact with such cases.

Because of these influences upon the character and earning capacity of the patient, surgical interference is to be adopted for the relief of even slight deformities, which in other parts of the body would be deemed unworthy of attention.

Much more can be done to relieve these conditions than is generally appreciated. They require, however, the knowledge usually possessed by the general surgeon to be supplemented by the special training and manipulative skill of the ophthalmologist, rhinologist, and oral specialist. It is probable that the limited attention given to the correction of these facial defects is largely due to the differentiation of specialism. The operator who knows how to relieve an ectropion or to properly adjust an artificial eye, for example, may have had no experience in correcting deformities of the nose. He is an oculist alone, and therefore not accustomed to osteoplastic operations upon the nose and jaws. Again, the work may not be undertaken, or not completely done, because the surgeon is familiar with amputations at the hip-joint and extirpation of the uterus, but has never split up a canaliculus, or sawed an intranasal spur associated with a crooked nose.

The partition of the facial structures to the various specialists has had, I am sure, a deleterious influence upon the development, and proper realization of the resources, of what may be called the cosmetic surgery of the face. This branch of surgery is very interesting, but requires for its successful performance an artistic appreciation of proportions, a delicate touch, and the specialized and small instruments of the oculist, aurist, and rhinologist. These must be added to the operative experience of the general surgeon, who is accustomed to large wounds and resections of bone; and who is not startled by hemorrhage from the internal maxillary or carotid arteries.

The operator can approach these cases with a great deal of confidence; because the very abundant blood-supply of the face makes anemic gangrene of flaps unusual, the bleeding which occurs is so accessible to operative hemostasis, and the shock of opera-

\*Read before the Medical Society of the State of Pennsylvania, May 18, 1898.

tion is in most cases unimportant. It only needs to have the operation well planned and neatly and artistically performed to insure success. The worse the deformity the greater as a rule is the satisfaction of the patient; because the improvement is so manifest, even when the final result leaves a condition that in normal faces would be considered a disfigurement. It is the patient who has very little deviation from the normal, and who has become morbidly sensitive, that is apt to be dissatisfied with the result of the operative treatment. In these cases the mental condition must be treated both before and after operation. The line of treatment is that adapted to neuroses in other departments of medicine. Pleasant mental occupation, distraction from one's self, nerve tonics and the usual hygienic accompaniments are needed in these as in other neurasthenic patients. Surgeons are too apt to overlook these valuable adjuncts to a perfect operative recovery.

An important point to insist upon is the necessity for repeated operative procedures. The patient as well as the surgeon should understand that it is often impossible to obtain a perfect restoration by one operation. It is frequently necessary to wait until Nature has absorbed the inflammatory exudate and caused shrinking of the flaps before determining what is the next step to be taken to further improve the appearance. Haste at this stage often leads to unnecessary operations or to unwise selection of lines of incision. At first a crude restoration of parts may be all that can with propriety be done.

The methods used in plastic or reparative surgery of the face cannot be recapitulated in the time assigned me by the committee, and need not be, since they are those well known to the profession. Skin-grafting, sliding and interpolation of flaps, osteoplastic operations, the introduction of non absorbable substances, the construction of artificial organs such as eyes and teeth, and the adjustment of celluloid or metallic substitutes for areas of lost tissue, are employed. The selection and adaptation of these expedients must vary with the condition to be remedied and be left to the individual judgment and experience of the operator.

The conditions which can be improved by surgical and prosthetic treatment are numerous and varied. A catalogue of these would include nearly every disease of the differentiated facial structures. The field of cosmetic surgery of the face is almost limitless. It

extends from tattooing a white scar on the cornea to the construction of an acceptable lower jaw or nose; from making a pair of ears comely to straightening a crooked nose or curing a salivary fistula; from removing a few freckles to remedying the distortion due to extensive burn or gunshot wound.

The object of this paper is to call attention to a greatly neglected branch of surgery; to urge the general surgeon to cultivate the thoughtfulness and manipulative skill of the specialist; and to make the profession and public familiar with the great relief that can readily be given to a large class of unhappy patients—patients who are permitted to go through life handicapped because they know not the relief accessible to them.

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*MULTIPLE INTUSSUSCEPTIONS OF THE  
SO-CALLED POST-MORTEM TYPE, OB-  
SERVED DURING LAPAROTOMY  
FOR A PENETRATING STAB-  
WOUND OF THE AB-  
DOMEN.*

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BY ROBERT G. LE CONTE, M.D.,  
Philadelphia.

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Jose C., aged 9½ years, was admitted to the Pennsylvania Hospital on August 11, 1897, with a penetrating stab-wound of the abdomen, caused by the blade of a penknife. The wound was situated about two inches to the left of the median line, a little below the level of the umbilicus, and was a third of an inch long on the skin surface. A plug of omentum protruded. The abdomen was opened in the left semilunar line, and the peritoneal wound was found to be more than double the length of the skin wound. Some artery had been severed in the abdominal wall, probably the deep epigastric or one of its large muscular branches, as the surrounding muscular tissue was distended with clot and there was a considerable hemorrhage into the peritoneal cavity. On searching the intestine for a wound, a direct intussusception an inch long was found about the middle of the small gut, and two or three feet lower down two more were found, one direct and the other retrograde, each about three-fourths of an inch long, while the sheath or intussusciens was probably two inches in length.

These intussusceptions resembled closely in appearance the kind so frequently observed at post-mortem examinations. There

was no sign of inflammation, no congestion or change of color in the gut or mesentery. The peritoneal coat was normal in appearance, and reduction was accomplished with very light traction.

Treves in his work on Intestinal Obstruction divides invaginations into two great forms, according to the circumstances of their origin: (1) the common or obstructive intussusception, and (2) the intussusception of the dying. The latter form depends upon certain irregular peristaltic movements which may be conceived to occur during the act of dying, either from the changes in the circulation, or from irregular stimulations of the (vagus) nerves. They also may form many hours after death, which is well illustrated in a case reported by Ruhrah (*Archives of Pediatrics*, April, 1896). While making an autopsy twenty hours after death on the body of an infant, he saw an intussusception of the ileum form, and on handling the intestines, other portions of the ileum and jejunum began to invaginate themselves, so that in a few moments the entire small gut had become a mass of intussusceptions, varying from five to ten centimeters in length.

The invaginations of the moribund differ from obstructive intussusceptions in that they are always small, free from congestion or inflammation, are often multiple, direct as well as retrograde in character, and are reduced by very slight traction. This case presented all these peculiarities and none of the obstructive type. In searching for the probable cause of these intussusceptions, three present themselves as possible: (1) The mechanical injury to the abdomen (the blow of a knife); (2) the considerable hemorrhage that had taken place into the abdominal cavity may have caused some change in the intestinal circulation; and (3) the opening of the abdomen and handling of the intestine while searching for a wound. The latter seems to me the most probable cause.

The recovery of the patient was uneventful, except that on two occasions he complained for a few hours of severe abdominal cramps, which were sudden in onset, and not associated with diarrhea or constipation. Treves has suggested that some of the sudden colicky attacks in children may have as their anatomical basis a series of temporary invaginations of the bowel, and it is possible to conceive that in this case one or more of these invaginations may have temporarily recurred.

### SOME EXPERIENCES IN SURGICAL GYNECOLOGY.

BY ANNA M. FULLERTON, M.D.,

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Successful work in surgical gynecology requires the careful solution of certain problems which constitute most important factors in the attainment of the desired result.

1. The first and most important point in the management of a gynecological case is the making of a correct diagnosis. Until gynecology, as one of the branches of medical science, is given due prominence in the curriculum of medical schools, both in the didactic and practical courses, the generality of the medical profession must frequently fall into grave error by failing to recognize the nature of many internal maladies from which their patients may suffer. The vague terms "pelvic peritonitis," "pelvic inflammation," or even "inflammation of the bowels," have been employed to cover a class of symptoms arising from very different causes. The history of an attack is not sufficient clue to the nature of the malady that may exist. Careful palpation of the pelvic contents by an experienced finger alone can enable one to determine whether the uterus or its appendages or surrounding structures are the offending members in any given case.

2. A diagnosis being made, the next point to determine is the question of treatment—whether it shall be operative or non-operative. Many important considerations must enter into the formation of one's decision on this point. Certain classes of cases, such as ectopic gestations, accumulations of pus in the pelvis, etc., will not brook delay. Prompt and efficient action is indicated. Even here, however, it is fruitless to snatch a patient from a threatened danger only to plunge her into greater danger by subjecting her to the performance of a grave operation by an unskilled hand, or under conditions which disregard the requirements of aseptic surgery.

3. The third consideration, therefore, concerns the choice of operative methods, including the preparation of the patient, the conduct of the operation, and the after-treatment of the case.

4. If we desire to keep our mortality list low we must give due heed to contraindications to operation that may exist in the general condition of the patient, or in marked disease of any other organ which may affect the result. So often do we find some disease

of other organs in patients requiring operative treatment that the weighing of a patient's chances in any given case often requires a very nice judgment.

Temporary conditions of acute pelvic inflammation, due to non-septic causes, we find to respond readily as a rule to the ordinary palliative measures for allaying inflammation, such as the use of salines, rest in bed, counter-irritation, etc. If properly treated they are apt to get well, without leaving any permanent lesion behind them. Palliative measures, when conditions warrant them, should therefore have a fair trial before operative procedures are resorted to.

When the history of a case and careful and intelligent examination prove a pelvic malady to be an immediate menace to the life of a patient or a source of persistent ill health and recurring disease, it is, I believe, poor practise to waste time in prolonged palliative treatment when an exploratory abdominal incision can clear up any doubt and prepare the way for more effective management.

A brief summary of the operative work recently done in my own service at the Woman's Hospital of Philadelphia may better illustrate some of the points I desire to make. The bacteriological examinations required were kindly made for me by Dr. Lydia Rabinowitsch, bacteriologist to the hospital; the pathological examinations by Dr. Marie K. Formad, its pathologist. I am indebted also for much valuable aid in the management of my cases to my assistants—Dr. Marie Formad, Dr. Frances Hatchette, and Dr. Adelaide M. Underwood. The interest and assistance of Dr. Ella B. Everett, chief resident, also deserve appreciative acknowledgment.

Celiotomies performed were as follows:

CASE I.—Femoral hernia; radical operation; recovery.

CASE II.—Double pyosalpinx; retroverted adherent uterus; repeated attacks of pelvic peritonitis. Bilateral removal of appendages; recovery. A small sinus existed for a time at the site of the drainage tube, which closed later. The patient was brought to the hospital suffering from an acute attack of pelvic inflammation, the result of leakage from the tubes. Bacteriological examination showed the pus to contain gonococci.

CASE III.—Ovarian cystoma. Removal of appendages of right side; recovery. This patient had been operated upon the year before for a similar condition of the ap-

pendages of the left side. The right ovary did not then seem sufficiently diseased to warrant removal, especially as the patient desired to retain it if possible; a few cysts contained in it were punctured at the time. The rapid development of trouble in this case illustrates the proneness of the remaining appendages to take on disease.

CASE IV.—Pedunculated uterine fibroid, with chronic disease of appendages. Hysteromyomectomy, bilateral removal of appendages, hysterorrhaphy; recovery. The existence of but the one growth in this case seemed to render it unnecessary to prolong the operation sufficiently to remove the entire uterus.

CASE V.—Double pyosalpinx. Bilateral removal of appendages, resection of ureter, uretero-cystostomy; recovery. The patient had suffered from repeated attacks of pelvic inflammation. She had been confined to her bed for two months previous to her admission to the hospital from a recent attack of peritonitis. During the operation adhesions of the pelvic viscera to surrounding structures were found to be numerous and dense. In the necessary enucleation of the appendages the right ureter was inadvertently severed. It was found on examination to offer that rather rare form of anomaly, a double ureter. Fortunately the division occurred so low down in the pelvis that it was possible to implant the distal extremities of the divided ureter into the upper portion of the bladder. The convalescence was without event.

CASE VI.—Retroflexed adherent uterus; sclerotic ovaries. Separation of adhesions, removal of appendages, hysterorrhaphy; recovery. This patient had passed the menopause for some years. She was in a state of nervous demoralization in consequence of pelvic pain. The ovaries were very small and as hard as little pebbles, owing to calcareous degeneration. Relief from pain was complete, following the operation, and the patient has again been enabled to take up with satisfaction the work she had given up as housekeeper in a girls' boarding-school.

CASE VII.—Fibrous thickening of posterior wall of the uterus; chronic salpingitis and ovaritis. Bilateral removal of appendages. As this patient was of feeble constitution, time was not taken for the removal of the uterus.

CASE VIII.—Wandering fibroid spleen; splenectomy; recovery. All the symptoms of this case, together with the clinical history, pointed to a probable ectopic gestation—sup-

pression of menses, recurrent colicky pains; sanious discharge from the uterus, with the expulsion of what her physician had taken for a cast of the uterus; colostrum in the breasts. A mass in the left side of the pelvis crowded the uterus to the right. To my surprise the mass proved to be a greatly engorged and enlarged spleen, with a long, twisted pedicle, its vessels filled with thrombi. The tumor was removed and the patient has continued in good health ever since.

CASE IX.—Double hydrosalpinx. Bilateral removal of the appendages; recovery.

CASE X.—Fibroid uterus; hysterectomy; recovery. Numerous adhesions existed in this case—the result of previous inflammatory attacks.

CASE XI.—Retroverted adherent uterus; chronic disease of appendages. Bilateral removal of appendages; separation of adhesions; recovery.

CASE XII.—Diseased adherent uterus; hysterectomy; recovery. This case is one among others that have come under my notice which would seem to illustrate the desirability of doing very radical operations for removal of the pelvic organs when affected by advanced gonorrheal diseases. The operation performed in this instance was the third abdominal operation done by myself for this patient. The first was for the removal of the appendages; the second, for separation of the uterus from new adhesions, especially to the bowels, and fixation of the organ by suture to the anterior abdominal wall; the third, a separation again from adhesions and entire removal of the uterus.

CASE XIII.—Fibroid tumor of uterus; hysterectomy; recovery. The convalescence of this patient afforded an interesting and unusual complication. She had been a native of the West Indies and had suffered repeatedly from the various tropical fevers, which had probably resulted in producing organic changes of the liver. Hence, following her etherization, she suffered from frequent vomiting of a dark, moss-green, frothy mucus. No treatment seemed to be of any avail in checking it, except that some respite was obtained by washing out of the stomach. There was little fever, the pulse was not rapid, nor was there any abdominal tympany. The abdomen had been kept well strapped by adhesive plaster to prevent strain from interfering with the union of the wound. On the eighth day after operation, the stomach being quieted, and the wound having apparently

healed by first intention, the stitches were removed. A day or two later a severe vomiting attack occurred, the wound opened up, and the intestines were extruded from it. I cleansed and replaced them and kept the wound packed with sterile gauze until it closed up by granulation.

CASE XIV.—Carcinoma of the uterus. Hysterectomy; decease of patient on third day from exhaustion due to chronic sepsis. The autopsy in this case showed a perfect condition of the site of the operation. It was found, however, that the patient had an amyloid liver with cancerous deposits throughout its substance. There were also large masses of fungous growths over the liver and parietal peritoneum in the upper portion of the abdomen. Had this condition been recognized before operation, the patient would not have been operated upon.

CASE XV.—Cysts of the broad ligament with cystic disease of the ovaries and chronic salpingitis. Bilateral removal of the appendages; recovery. This operation was done for a patient whose mind was affected. Though the patient became quieter and more manageable after operation, this procedure has not served to restore her mind. The conditions which existed, however, demanded operation apart from the effect which they might be supposed to have upon the mental state.

CASE XVI.—Advanced tubercular disease of uterine appendages and peritoneum. Bilateral removal of appendages, with the evacuation of nearly three gallons of free liquid from the abdominal cavity. The prognosis in this case was bad from the nature and extent of the malady discovered. Within three months after her return to her home, paracentesis abdominis was done twice for a reaccumulation of the fluid, and the patient shortly afterward succumbed to the progress of the disease.

CASE XVII.—Procidentia uteri; varicosity of broad ligaments; chronic disease of appendages. Bilateral removal of appendages; hysterorrhaphy; recovery. For the extreme relaxation of the vagina a Le Fort operation for its closure was done later.

CASE XVIII.—Intraligamentous multilocular cystoma of immense size filling both the abdomen and pelvis. Patient was sixty-nine years of age. Death from secondary shock. The patient had carried the tumor for thirty years, during which time she had been a constant sufferer, spending much of her time in hospitals. The recent rapid growth of the

mass had greatly increased her sufferings, causing retention of urine and edema of the vulva and lower limbs. The patient therefore determined to have the operation done at all risks. I had some doubt of the patient's ability to pass through so trying an operative procedure, and therefore had her heart examined previously by a specialist, who pronounced it a "senile heart," but found no evidence of organic disease. He thought that with care an anesthetic might be safely given. The operation proved to be a formidable one, dense adhesions existing. There was very little blood lost, yet the patient was badly shocked. She rallied, however, for a time, but again relapsed and died of exhaustion. No more striking illustration could be afforded of the evils of delay in the removal of tumors. Thirty years of suffering and a fatal termination might have been avoided had the operation been undertaken earlier in the patient's history.

CASE XIX.—Suppurating ovarian cystoma with tuberculous disease of the appendages, and disseminated miliary tubercle of the entire visceral and parietal peritoneum. Removal of cystoma and bilateral removal of appendages; recovery. Many bowel adhesions existed in this case, requiring considerable stitching of the bowel to protect the points weakened by separation of adhesions. Had there not been so much pus which it was necessary to remove, I should have felt tempted to close the abdomen without completing the operation. The patient was thoroughly septic when operated upon. She made a brave struggle for life, however, and recovered with a small fistula at the site of the drainage tube, which at times discharged fecal matter. The patient desired me to operate again for closure of the fistula, but knowing the extensive involvement of all the abdominal organs in tubercular disease, I did not feel warranted in encouraging her to go through with another operation.

CASE XX.—Multilocular uterine fibroids. Hysterectomy; recovery. One of the growths in this case involved the posterior uterine wall in such a way as to cause much distress from pressure. Complete relief was experienced immediately after the operation.

CASE XXI.—Ventral hernia, the result of a celiotomy for removal of pus tubes. Recovery.

CASE XXII.—Retroflexed uterus. Intra-peritoneal shortening of the round ligaments for correction of position of uterus; recovery.

CASE XXIII.—Multilocular cyst of right

ovary of large size; removal; recovery. Just preceding the operation the patient had suffered from a sharp attack of peritonitis, the result of an injury. The adhesions resulting from this were quite extensive.

CASE XXIV.—Tubercular pyosalpinx. Bilateral removal of the appendages; recovery. This patient when she came to see me at my office was wearing ichthyol ointment over her abdomen for the severe pain from which she suffered, and taking electrical treatment *per vaginam*. The existence of tubercle bacilli in the pus from the tubes was demonstrated by bacteriological examination.

CASE XXV.—Pelvic abscess, the result probably of an attempt at criminal abortion; rupture of left tube; patient *in extremis* from septic absorption. Evacuation of abscess and removal of gangrenous appendages of left side. Death from sepsis third day after operation.

CASE XXVI.—Retroflexion of uterus. Intra-peritoneal shortening of round ligaments; recovery.

CASE XXVII.—Chronic disease of appendages; bilateral removal; recovery. In this case I had done Alexander's operation for correction in position of a retroflexed uterus some time before. The patient suffered greatly from dysmenorrhea, which it was thus demonstrated was due to the condition of the appendages rather than the abnormal position of the uterus.

CASE XXVIII.—Chronic salpingitis and ovaritis; hematoma of ovaries. Bilateral removal of appendages; recovery.

CASE XXIX.—Tubercular ascites. Exploratory celiotomy; evacuation of fluid; lavage of abdominal cavity; recovery. The visceral and parietal peritoneum as well as the contents of the pelvis were studded with miliary tubercles.

CASE XXX.—Chronic salpingitis and ovaritis. Bilateral removal of appendages; recovery.

CASE XXXI.—Fibroid tumor of uterus (hemorrhagic). Hysterectomy; recovery.

CASE XXXII.—Chronic disease of the appendages. Bilateral removal; recovery.

CASE XXXIII.—Tubercular pyosalpinx; rupture of tube. Bilateral removal of appendages; recovery.

CASE XXXIV.—Gonorrheal pyosalpinx and ovarian suppuration. Bilateral removal of appendages; recovery. The extreme distention of the tubes with pus in this case accounted for the paroxysmal pains, strongly simulating those of ectopic gestation, from



which the patient suffered for two months before I saw her.

CASE XXXV.—Hemorrhagic uterine fibroid. Hysterectomy; recovery. This patient when brought to the hospital was so ill that she was considered an unfit case for operation. She had been so reduced by hemorrhage that upon examination of the blood a marked condition of leucocytosis was noted. As the effect possibly of pressure from the tumor, an irritating diarrhea existed which further exhausted her. She was unable to void urine owing to obstruction of the urethra, and had to be catheterized at intervals. After tonic treatment and careful feeding for several weeks she was prepared to pass through her trying operation with safety.

CASE XXXVI.—Double pyosalpinx and ovarian abscesses; subperitoneal uterine fibroid. Myomectomy and bilateral removal of appendages; recovery. This patient also was extremely ill when admitted to the hospital, already suffering from pus absorption.

CASE XXXVII.—Fibroid uterus; chronic disease of appendages. Hysterectomy; recovery.

CASE XXXVIII.—Enlarged cystic ovary with hematoma. Unilateral removal of appendages. As this operation was done for a comparatively young woman I did not feel warranted in removing both ovaries. The condition of the one remaining was fairly good.

CASE XXXIX.—Hydrosalpinx, chronic ovaritis, and salpingitis; numerous adhesions, the result of repeated attacks of peritonitis. Bilateral removal of appendages; recovery.

CASE XL.—Uterine fibroid; hysterectomy; recovery.

The cases of celiotomy just enumerated included nine cases of hysterectomy, two of hystero-myomectomy, eight cases of removal of appendages for pyosalpinx, four for removal of cystic tumors, two celiotomies for tubercular peritonitis, two herniotomies, one splenectomy for wandering spleen, two cases for intraperitoneal shortening of the round ligaments, two operations for removal of appendages for hydrosalpinx. The remaining (eight) celiotomies were salpingo-oophorectomies for chronic disease of the appendages, attended with repeated attacks of peritonitis.

Other operations done during this period included two cases of vaginal hysterectomy; three exploratory incisions of the vaginal vault; two cases of vaginal puncture for

evacuation of inflammatory products in the broad ligament; six cases of amputation of the uterine cervix; four operations for shortening the round ligaments by Alexander's method; thirteen rectal operations, including six Whitehead's operations for hemorrhoids; one proctorrhaphy for prolapse of the bowel; the remaining operations for fissures, fistulæ, and ischio-rectal abscesses. Eight vesical and urethral operations were done; twelve trachelorrhaphies, twenty-five perineorrhaphies, and several other plastic operations upon the vagina for relaxation; four cases of excision of the breast; three cases of evacuation of breast abscesses. Several other minor operations were called for.

The three fatal cases in the entire list were those in which an error in judgment in estimating the strength of the patient, and a failure to appreciate the extent of the disease, were possibly partial factors in the defeat. All were desperate cases: the first, that of neglected intraligamentary cyst; the second, of disseminated carcinomatous disease; the third, of puerperal sepsis. The keener one's surgical sense becomes, the less frequently must such misfortunes overtake the operator.

123 S. 16TH ST., PHILADELPHIA.

*SOME REMARKS CONCERNING RECTAL AFFECTIONS, WITH ESPECIAL REFERENCE TO THE PHYSICAL EXPLORATION OF THE RECTUM.\**

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There are some practitioners who think that the diagnosis of rectal diseases is attended by considerable difficulty, and that complicated apparatus is required in order to reach a positive conclusion. Such is not the case. Nor, on the other hand, is it true that any satisfactory opinion can be formed by a cursory and careless inspection of the anus and adjacent parts. It is due to such a method of examining that I have noted polypoid growths diagnosed as prolapse of the bowel, and fissure of the anus or irritable ulcer (a better name) unsuccessfully treated

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because of the presence of an undiscovered polypus. Likewise, persons affected with malignant stricture of the rectum being subjected to operation for the removal of coexisting hemorrhoids or of a fistula *in ano*, whilst the real trouble was undetected.

My object in presenting this paper is to detail the method which I employ in investigating cases of rectal disease and affections of the sigmoid flexure, and to lay special stress upon the necessity of making a thorough physical exploration of the bowel in every case of suspected rectal trouble.

All persons suffering from diseases of the rectum are much depressed and more or less nervous. This fact, combined with the natural restraint experienced in paying a first visit to a physician, should be realized by the examiner, and in order to aid such persons to recover their composure it is best to encourage them to give the history of the disease in all its details. Whilst this consumes time, the more important object is accomplished of securing the cooperation of the patient in the subsequent steps of the investigation, to wit, the digital exploration of the bowel, without which a positive diagnosis can never be made. These remarks are especially applicable to the treatment of females. Assent to a vaginal examination is much more readily obtained than is the consent to inspect the seat of rectal trouble.

After the patient has concluded the description of the ailment, then by a few well directed but not leading questions we may be able to complete the history. The following are the principal queries which may be asked with advantage:

*First, in reference to pain.*—Is there any pain? If so, of what character? Is it situated in the rectum? What is its relation to the act of defecation? Is it worse during an evacuation, shortly afterwards, or some time after the movement? Is itching, a sense of fulness or heat experienced?

*Second, regarding protrusion at the fundament.*—Is there any swelling or protrusion at the anus? Does this occur only at defecation, or is it independent of this act? Does the bowel bleed? Does it go back spontaneously, or has the patient to return it?

*Third, as to the presence of a discharge.*—Is there any discharge? If so, what is its nature (bloody, mucous, or purulent)? Is it offensive? Does it occur before or immediately after defecation, or is it independent of the action of the bowels?

*Fourth, as to the regularity of the action of*

*the bowels.*—Is there a daily movement, or does constipation or diarrhea exist? What is the character of the fecal evacuation, as to color, size, and consistence?

*Finally, the following general interrogations should be made.*—Does the patient cough, have night sweats, spit blood, or has there been a loss of flesh? What are the habits of life, especially with reference to the use of alcoholic liquors, tobacco, and indulgence in venery? Is there any specific history? Lastly, inquire as to any hereditary tendency to rectal trouble, malignant disease, kidney, liver or heart affection. In women inquire into the condition of the sexual organs, etc. Whenever the idea of any operative procedure is entertained, the urine should be examined and a thorough physical inspection of the patient made.

Having obtained the subjective symptoms and being satisfied as to the existence of rectal disease, we proceed to confirm the provisional diagnosis, and to obtain positive information upon which to base the prognosis and to guide the treatment, by making a thorough local examination of the anus and adjacent parts, including the rectum. If possible the patient should have the bowel emptied by an enema immediately before an examination is attempted. In the case of female patients especially, the neglect of this will often render a thorough investigation impossible, without recourse to general anesthesia, owing to the patient's fear of an accident occurring, such as the escape of flatus. Under such circumstances I have known the sphincter muscles to be so tightly closed that the surgeon was frustrated in the attempt to explore the parts. When a specular examination is necessary—as in the investigation of the higher portions of the rectum, or of the sigmoid flexure—it is absolutely essential that the contents of the bowel be cleared out.

There are various postures in which this examination may be made. Some surgeons prefer the patient to lean over the back of an ordinary chair; others, to have them kneel upon a table with the head placed on the folded arms of the patient, by which means the buttocks are elevated and the intestines are allowed to gravitate from the seat of investigation; others, the lithotomy position; but for general use I think that the most comfortable as well as the most delicate posture for the patient, and that most convenient for the examiner, is for the patient to lie on a firm couch on the left side, the right

shoulder turned away from the surgeon, the left arm brought behind the body, and the right thigh well flexed upon the abdomen. In examining for the presence of strictures or growths situated above the lower four inches of the rectum, by directing the patient to stand and strain, the diseased part will be brought nearer to the anus, so that at least an inch more of the bowel may be explored than can be done when the patient assumes the usual position, even though directions be given to bear down.

Regarding light, either natural or artificial light may be used. I prefer the former. By means of a head-mirror—the operator sitting facing the light and the patient's back being from the same—the light may be concentrated upon any particular point requiring observation.

The instruments usually required are: A flexible probe, made of silver, useful for the exploration of fistulous tracks; an exploring needle, or a small trocar, by means of which can be ascertained the nature of the contents of any swelling or fluid collection met with in these parts; Dr. Howard A. Kelly's short and long proctoscope, and sigmoidoscope; sponge-holders; basins; and possibly a hypodermic syringe, with a flexible silver cannula attached, which is useful in detecting whether a fistulous track be complete or otherwise. Plenty of towels and cotton should be on hand.

Everything being in readiness for the examination, we now proceed to inspect the condition of the external parts. On separating the buttocks, the orifice of the anus will come into view. The radiating folds should be separated by the fingers, and cracks, excoriations and fissures should be looked for. External hemorrhoids will also be noted, if present. By passing the finger around the anus and making pressure, any induration that exists will be detected; this may be due to a fistula or an abscess. If the parts are covered with a discharge it should be wiped away and its source traced, as to whether it be from an external opening of a fistulous track, etc. Eruptions of any kind—eczematous, syphilitic, or otherwise—must also be noticed.

The next step is to make a digital examination of the interior of the rectum. It is by this means that the most important information is to be gleaned, and it is a procedure that should never be omitted in any case of presumed rectal trouble. Such an investigation is not a very pleasant one, either to the patient or to the practitioner, yet without it the physician needlessly sacrifices his repu-

tation and risks possibly the patient's life. It sometimes happens that a patient refuses to be examined. I recall the case of a woman who visited my office and who not only refused permission for an examination, but freely expressed her surprise at my making the request. In part this action was explained when she informed me that I was the fifteenth or sixteenth doctor she had consulted, and that it was the first time that any such procedure had been suggested. I politely informed her that the investigation was particularly needful in her case and might be the means of preventing any further increase in the number of her medical advisers.

The method of making the examination is as follows: The nail of the index-finger being well trimmed and the finger lubricated with carbolized oil, which I prefer to vaselin or other similar substances, is introduced into the bowel by a slow boring motion, in a direction at first slightly forward. This should be done gradually, so as to allow the sphincters time to relax; if attempted too hurriedly or in too forcible a manner, spasm of the muscles will to a certainty be induced. As the finger enters, the condition of the sphincters is to be noted. The strength, measured by the power of resistance, will be found to vary greatly in different people. In the aged or debilitated it is apt to be very weak, and just the reverse in the strong and healthy. In persons of a specially nervous tendency, and in cases of irritable ulcer of the anus, a contraction may be met with, which, owing to the pain, will render an examination impossible without the use of an anesthetic.

The finger should now be passed its full length up the bowel unless an obstruction exists, and by instructing the patient to bear down forcibly the rectum can be explored for a considerable distance. Additional length may be gained by passing the other fingers of the examining hand backward along the intergluteal groove, instead of closing them in the palm, as is generally done, and pressing the knuckles against the soft parts. The knuckles, in the latter procedure, prevent the full passage of the index-finger. In this manner about three and a half or four inches of the rectum may be explored, together with the prostate, the neck of the bladder, the uterus, the anterior surface of the coccyx, the lower part of the sacrum, the ovaries and tubes, and the broad ligament. With an exceptionally long finger it may be possible to feel the seminal vesicles and the vas deferens.

In making a rectal examination it must be

borne in mind that frequently two or more rectal diseases coexist, as for instance a polypoid growth complicating a fissure, or malignant disease existing with fistula and hemorrhoids, etc.

Malignant infiltration, or stricture, can be detected, if situated within reach. By sweeping the finger around the mucous membrane, its condition can be noted; a general smoothness and absence of the normal folds indicating atony. Ulceration may be recognized; and the attachment of polypi can be felt. In examining for a polypus, it is important that the finger be brought from above downward, as otherwise the growth may be pushed out of reach owing to the length of the pedicle, which is often considerably elongated. Fecal masses in the rectal pouch can be recognized without difficulty.

The finger is now to be partly withdrawn, passing the palmar surface around the entire surface of the mucous membrane as this is done, in order to note the existence of internal openings of fistulæ, the seat of ulcers, etc. As the outlet of the bowel is approached, internal piles may be perceived, but the fact should always be remembered that unless they are thickened by inflammatory changes they are extremely hard to recognize by the sense of touch; in point of fact, the sensation conveyed to the finger is more apt to deceive the surgeon than any other rectal trouble.

Mr. Chas. B. Ball states in his admirable treatise on "The Rectum and Anus, Their Diseases and Treatment," that he has frequently seen cases in which these growths, although scarcely appreciable to the touch, were found, upon ocular inspection after dilatation of the sphincters, to be of considerable size. This he claims is owing to the fact that they are so soft and movable that they closely resemble in feel the normal columns and folds of the mucous membrane.

*The Use of the Speculum*—In the large majority of rectal diseases, digital and ocular examination is sufficient for purposes of diagnosis, but for some cases the use of the speculum is a desirable adjunct. These instruments are made in a variety of forms. The speculum which I now commonly employ for diagnostic purposes is one of the several lengths of Kelly's tubes; the length of the tube selected depending on the portion of the bowel to be explored. Previous to being introduced into the rectum, the speculum should be warmed and then well lubricated. On inserting it into the anus it should be gently but slowly directed a little

forward and upward for a distance of about an inch, as if to pass from the perineum to the umbilicus, in order that it may follow the course of the anal canal; having reached this depth, which is somewhat greater in the male than in the opposite sex, the point should be inclined backward, first slightly and afterwards to a greater extent, until the instrument is fully in.

Should the interior view of the rectum be obstructed by blood, mucus, or feces, a mop of cotton attached to a holder made for the purpose should be used to cleanse the parts. With these instruments the interior of the rectum and the sigmoid flexure can be examined and the exact condition of affairs ascertained. Other forms of specula are furnished with blades or plates, which can be separated to the requisite extent by means of a screw attachment.

*The use of the rectal bougie* for diagnostic purposes I mention only to condemn. The introduction of these instruments is one of considerable difficulty and requires greater practise than the passage of a urethral catheter; the danger of perforation is greater, and the result of such an accident is very much more serious than in the urethra. In the one case a fatal peritonitis will likely be started, while in the other a false passage will probably be the sequence. The use of the Kelly tube has obviated the necessity of employing the bougie for the purpose of diagnosis.

*Rectal Eversion as a Means of Diagnosis.*—In examining the rectum in females, Dr. H. R. Stover, of Boston, has recommended eversion of the bowel by the finger placed into the vagina. This method is useful in women who have borne children, but not in the young and unmarried. A portion of the anterior wall may thus be exposed.

*The introduction of the hand* into the rectum is a procedure which may be a means of exploration open to the surgeon, but I am inclined to view the amount of information obtainable by its use hardly sufficient to warrant the practise.

*Exploration with a silver probe*, seven or eight inches in length, is of value in detecting blind external or internal and complete anal fistulæ. Being flexible it may be bent to any desired form.

*Injections of various fluids*, such as peroxide of hydrogen, a two-per-cent. solution of creolin, milk, or a weak iodine solution, often serve a useful purpose for detecting the internal opening of a fistulous track.

ADDRESS IN OBSTETRICS BEFORE THE  
PENNSYLVANIA STATE MEDICAL  
SOCIETY, MAY, 1898.

By S. S. TOWLER, M.D.,  
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This address is from the standpoint of the general practitioner and the commonplace; from the standpoint of the general practitioner, not in that sense of antagonism to the specialist that is becoming an unfortunate feature in the profession—a feature that bodes no good and is to be deplored—but from the standpoint that the general practitioner is, notwithstanding numerous articles on his “decadence” and his “passing,” yet the most important, as he is the most numerous, personality in the science of medicine. From the very nature and complexity of the human organism it will be a “sorry day” for the unfortunate sick when there is an end to that individual known as the “family doctor.” There need be no fear, however, of this, as long as the profession has the sound sense to recognize, as they now do, that the best specialists are those trained as general practitioners. In using the word “specialist” throughout this paper, it is to be understood as referring to the specialist concerned in this subject—none other.

The line between obstetrical practise and gynecology is so narrow that, for the purposes of this paper, it is assumed that one includes the other. The specialist should be considered as the ally, friend and helpmate of the general practitioner. Any of the brethren who are not willing to act that part should be promptly dropped for one who will. The responsibility of the general practitioner does not end with the calling in of the specialist, and should not so end. The patient should still be his, and all his rights ought to be carefully considered and justly observed. There are specialists who are the soul of honor, who respect the trials, difficulties and position of the “family doctor;” men who come to his side anxious both for him and his patient; men who are willing to share with him the unfortunate issue, if so it be, as well as the success, if such be their happy lot. It is a pleasure to testify here and now that we do not have to go beyond the confines of this commonwealth to find them, nor outside of the membership of this Society. On the other hand, there is a class practising gynecology that general practitioners hate and ought to hate. It is that class whose clientage are brought in by

more or less sly advertising—by personal friends acting the part of runners, and meddlesome old women. This kind pose as a sort of “great wonder,” and, after exhibiting office specimens, make a variously executed examination, that fairly stuns the patient. After that comes the cut at the general practitioner. The woman may have had anywhere from one to ten children, but all the same, he calmly and impressively says, “I am sorry to say, Madam, that the physician who attended you last in confinement was ignorant of his duties. You have a bad, a very bad, terribly bad, rupture of the cervix” (rising inflection).

The chances are ten to one that the tear is an insignificant one (but the fee a large one), and that the little tear occurred in the first confinement, and not the last. His fault is not in saying there is a tear, if that *is* the condition, but in emphasizing it, for his own benefit, and the placing of a responsibility beyond his knowledge.

Yes! we hate that fellow with a vigor born of righteous indignation. Yet it is but fair to add that he would have made just as contemptible a general practitioner as he does a specialist. There is, however, a fair and honest field of opposition to any specialist that the general practitioner can and should enter into and enjoy; it is that sort of opposition that will, so far as in him lies, do his own work so well that the specialist will have no case through any *fault* of his.

This brings us to the subject from the standpoint of the commonplace. The great majority of deliveries are commonplace. They do fairly well with only neighborly help. This is a great comfort to the general practitioner, who consoles himself, on refusing to go on a charity call, with the thought that “she will get along all right anyhow.” At the same time, we all know that it is a sin and a shame for people of means to be running any risks at such a time. We like to warn them beforehand, to take no chances on old women and good luck. It may be the proper professional thing to vigorously damn the successors of “Sairy Gamp” and “Betsey Prig,” on account of their ignorance, dirtiness, and presumption; but it is just as well to remember that precisely the same results follow the carelessness and neglect of the educated physician. It is from this carelessness and neglect of the commonplace that the vast majority of calamities arise in obstetrical practise. One of the unfortunate features is that so many cases come to us

without any previous knowledge of their condition. The pregnant woman should be taught to report to the family physician as soon as she knows she is pregnant. It is not necessary for me to explain here in detail how much suffering would be saved and how many sad results would never occur if this practise was more common. The diagnosis of pregnancy is by no means always easy or certain. When there is a doubt, and the patient begins to show decline, prompt means should be taken to ascertain the actual condition. It may be tumor, extra-uterine pregnancy, cancer, tubercular peritonitis, hydatids, or some other abnormal and dangerous condition. It is due to the patient to find out. The way to find out is to send for the most competent medical man we know. If the patient is poor, it is proper to ask the poor authorities of town or county to assist in either bringing in the needed assistance or taking the patient to that assistance. There is neither right nor justice in refusing fair compensation to the medical attendant, while at the same time the butcher and baker are getting their pay. If the family are able to pay some compensation it ought to be required, but all of it ought not to go to the specialist. If he is the right kind of a man he will not expect it. An excellent plan in the poorer class of cases is to take advantage of the clinical lectures offered through a committee of this Society, and when you get your expert, rush in your doubtful cases. You will find more difficulty on the part of the patients than you will find kicking on the part of the specialist.

If circumstances permit—if the patient is close by and the surroundings suitable—the patient should, if an operation is needed, be operated on at home. The general practitioner who is not competent to take care of a patient after operation and instructions by his specialist ought to at once go and learn. If the circumstances are not in line with success, then she should be removed, preferably to a well-conducted hospital. There are cases, fortunately very rarely, when all the chance possible demands immediate operation. Expert skill may be at too great a distance to be secured in time. Under these circumstances the nearest and most competent surgeon should be called in, and, with the consent of the family, the operation performed. She is entitled to all the chance that available skill can give her. To this end we should use all means in our power to qualify ourselves for just such emergencies.

Yet always, when experienced skill can be obtained, it is imperative to obtain it. Skillful rapidity of operation may be the only salvation, and this cannot be obtained by the occasional operator. In the ordinary cases, too often, the vomiting of pregnancy is treated with various medicines, until the patient is losing strength mentally and physically. As soon as it is evident that relief is not being afforded, applications, preferably of tincture of iodine, should be applied directly to the os. Lightly tamponing the cervix with a strip of borated gauze is often effective when applications fail. Whatever means are used, if evidence of improvement is not soon manifest, new measures, carefully studied out, should be promptly used. Yet all the time, it is not to be forgotten that not all the nausea, perhaps none of it, is due to pregnancy, even though pregnancy exist. There are other organs in a woman besides the uterus—an exceedingly commonplace fact, too often forgotten or ignored. When all reasonable effort to control the vomiting has failed, it becomes the serious question of determining whether the attempt is to be made by feeding, stimulants, etc., to carry the woman to term or near term, or induce labor early. Is it not sound sense and good judgment to take the side of least risk to the patient? The time of least risk to her is certainly *not* when she has become a starved wreck of her former self. Yet we are advised, time and again, to carry her along as far as possible toward term in hope of a change. That line of "possible" is a danger line easily passed by even a largely experienced, but hopeful, practitioner. When induced labor is determined upon, and this should be settled in consultation with the nearest most competent medical man or woman, the condition of the patient must be considered as well as the method. In most cases a firm tampon of gauze in the cervix, followed by frequent douches of warm sterile water, will be all that is needed. A rubber bedpan with outflow tube, and a fountain syringe holding two or three quarts, make the procedure neither uncomfortable nor exhausting to the patient. Glycerin, injected into the cervix, the os covered with thin rubber protective to prevent immediate outflow, followed by a snug packing of the vaginal vault, with plain or borated gauze, is perhaps the next least dangerous method.

Whatever procedure is followed, thorough cleanliness and complete emptying of the uterus must be constantly kept in view.

Throughout the entire term of pregnancy, and especially in the last third, particular attention is to be paid to kidneys, bladder, and bowels. It requires frequent inquiries and imperative commands, on the part of the medical attendant, to obtain anything like proper attention to the bowels of either pregnant or non-pregnant women. In the last month of pregnancy it is a mistake to urge the woman to exercise freely. It is a period that demands rest, quiet movements, light meals of nourishing food, and abundant sleep. When time is up, and the practitioner is called, he should make it his special business to look thoroughly into the surroundings—the bed is to be made as clean as the possessions of the family will permit. The idea that “any old thing” will do until after completion of labor is a bad mistake, and yet a more common one than some suppose. The bed should be firm and the springs taken out. How much this simple procedure helps both patient and doctor only those who have tried it know. A little ingenuity puts the springs back again with little disturbance to the woman.

As to the person of the patient, we have been for some time past regaled with what the writers call “the obstetric toilet.” With some of these advisers the woman is to be put through a series of washings, scrubbings, douches, and packings, that puts to shame the necessary procedure of the rigid skilful gynecologist. On the other hand, we are told that all this is unnecessary. Both are wrong. In normal cases a good warm bath, and a vaginal douche of warm sterile water, is all that is necessary. It is never to be forgotten that the use of any solution that dries up, or tends to dry up, a natural healthy secretion is wrong. Diseased conditions are to be met promptly, but we are not to use drugs when drugs are not called for. The cleanliness of the practitioner is of as much or more importance than that of the patient. In the majority of cases infection is from without. If the attendant *knows* that there is nothing septic about him, then a good wash of arms and hands with hot water and good laundry soap, with proper attention to the nails, is all that is needed. There must be no doubt, however, of the prior cleanliness. If there is any doubt, then nothing short of thorough disinfection is to be used before any examination is made.

It is not long since the writer knew of a case in which the practitioner went directly from incising a septic abscess to attend a

primipara. The woman shortly after died from infection. Ignorance, some would say. Yet this man hangs on his office wall the diplomas of two of the nation's best medical universities. No! not ignorance, gentlemen, but unquestionably criminal negligence. In view of the records made in maternities, where cleanliness all around is the rule, the continuance of puerperal fevers, of more or less grave character, in general practise must be attributed more to carelessness than surroundings. Except in the cases of the degraded and very poor, a fair amount of cleanliness may be secured by careful attention and persistence. But just so long as one hugs to himself the hope and chance that each patient will get along as well as the majority do, will he take risks that, sooner or later, will land him and his patient in trouble.

When the examination is made, it is to be made thoroughly. We are not to wait until the head or other presenting part is jammed and wedged in the pelvis before we know that version is necessary; or a loop of six inches, more or less, is felt externally before we find we have a prolapsed cord; or half a dozen other abnormal conditions exist. Because pains are feeble, or “just a few in the back,” is no excuse for not promptly ascertaining the exact condition, as far as possible, at the first examination.

When forceps are to be used has taken up much time and ink, and yet the squabble in some journals goes on. On the one side, we have the man who would only wait an hour or two, and then apply. We have another set whose only conception of instrumental delivery is to hitch on and drag out. We have the solemn old gentleman, who poses as better than all of us, because he has practised forty years and never used them. Thank Heaven! we have also those doctors who are not only the salt of the profession, but almost “the salt of the earth”—doctors whose guide in this, as in all else they do, is sound common sense.

It is not the purpose of this paper to go into many details of any feature presented. It is one of the purposes, however, to point out that in the careless or reckless use of forceps we furnish the gynecologist with many a needless case. In too many instances the practitioner is in too much of a hurry. In these days of many doctors and much competition there arises the fear that during an absence some patient may get into a rival's office, and a quarter, more or less, be

lost forever. So in the haste to be wealthy one ceases to be wise. If a big dose of ergot does not hurry up the affair, on goes a pair of instruments. There are some simple things usually ignored in this haste. One is that forceps are not to be applied until the os is so dilated or dilatable that both head and forceps will emerge without stretching the part until tears result. There is no reference here to abnormal conditions, or even normal conditions, that make this sort of delivery impossible without some rupture; it is the undue haste that is condemned. Again, the ordinary forceps are not to be compared, as to either safety or ease, with the traction forceps, yet comparatively few of the latter are in use in general practise.

If a rupture of the cervix or peritoneum does occur, repair the latter from at once to within twenty-four hours, and the former within forty-eight hours, according to the condition of the patient. In repair, the important thing to remember is that the tear is from within outward; that in early repair the parts will come as naturally into adaptation as a tear in any other part of the body. If the attendant is not competent to do this, then justice to both himself and patient demands that he should at once call in some one who is. It is a shame to allow one who trusts her welfare into the hands of another to be left to drag out the life of an invalid, through the neglect of the one so trusted.

With many young physicians, and some not young, there is a false idea that to call in another more competent man is a sort of "give away;" that the patient or family will regard it only as a want of skill on the part of the attendant if he does so. It is a great mistake. That young doctor who has the good sense to call in experience in a difficult case will win nine times in ten over the "know it all," and keep the confidence of his patient besides.

When version is necessary, the rule in general practise is to proceed by the podalic method. The combined method of internal and external manipulations is preferable. There are comparatively few general practitioners who are competent to perform version by the external method only. This last method has an element of uncertainty about it that bars it from common usage. The same rule as to dilated or dilatable os is to be followed in version as in the use of forceps; otherwise the same unfortunate results follow. Whatever question may arise as to the advisability of administering ergot in any stage

of labor, when version is necessary its use is to be very much deplored. Cases have come to the knowledge of the writer in which its administration has caused hours of delay from strong contraction in spite of anesthesia. Gentleness and slowness save the parts, as well as the reputation of the attendant. In post-partum hemorrhage, one serious danger is in the practitioner not having at hand the necessary means to deal with the condition. Ergot is generally the only thing in the bag for that purpose. A good big dose is given by the mouth, and the patient is nearly pulseless before it can have any effect. No practitioner should go to an obstetric case without having with him prompt, effective means to meet emergencies. Yet this is not commonly done. Ergot and a hypodermic syringe satisfies the consciences of too many. Once the writer was so careless that not even these were at hand when a gush of blood flowed out that covered the arm to the elbow. It was winter, and, fortunately, close by the bed was a window, the sill piled with snow. To open it, make a snowball, and push it into the uterus, was the work of a minute. That snow saved the patient's life, and the event taught the attendant a lesson he never forgot.

It is not necessary to weary you with the many things that may be done in these cases. The point I wish to make is that the means are to be at hand, not in the office or drug store. There are cases, not very common, in which, after labor is completed, the patient clean and comfortable, with a well contracted uterus, hemorrhage occurs one or more hours afterwards. The attendant, hastily recalled, finds the uterus large and contracted on a solid clot, and the hemorrhage stopped. It is wisdom to let that clot alone. Usually it is expelled in a short time, and in the process the uterus contracts naturally.

After completion of labor, perseverant insistence on cleanliness is to be the rule *without exception*. That, and many other commonplaces, might be taken up, both as to mother and child, but enough has been mentioned to serve the purposes of this paper. Our journals are full of the details of great things; our literature is approaching completeness in theory and practise of the uncommon. Many a practitioner who longs for an opportunity to distinguish himself by an operation never takes time to ascertain if his obstetric patient uses a clean syringe. The careful "family doctor" frequently hears from a new patient, "Doctor, this was not done in any of my previous confinements.



Is it necessary?" Not infrequently the consultant physician finds that nearly all the preventable aids have not been used, and this not from ignorance but neglect.

This paper is not the vaporings of a "scold." The experiences of nearly thirty years emphasize the necessity of careful attention to the common, as well as the importance of readiness to meet the uncommon. None know better than the writer how simple this paper appears to many. None know better than he who addresses you how very commonplace it is. It is so intended. But, gentlemen, the careful, conscientious attention to the commonplaces means comfort, health, happiness, perchance the very existence, of her to whom every man who is a man bows in respectful reverence; of her whom every one of us is bound to protect, care for, and save, if the need be, even at the peril of his own life—the American Mother.

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#### THE STATISTICS OF THE SERUM TREATMENT OF DIPHTHERIA.

PHOTIADES (*Archives Générales de Médecine*, January, 1898) shows that recently endless confusion has arisen in the study of diphtheria. In place of Trousseau's clinical classification of sore throats into true diphtheritic angina as opposed to toxic, infective and malignant angina, the presence of Loeffler's bacillus is now sufficient to fix the diagnosis of diphtheria. To adapt the new facts of bacteriology to one's clinical knowledge becomes more and more difficult. For instance, Gougenheim finds diphtheria to be much more common in adults than is usually supposed; besides, in its membranous form it occurs commonly as lacunar tonsillitis. He says every acute case of sore throat should be examined bacteriologically for fear of missing diphtheria. A harmless catarrhal angina may reveal Loeffler's bacillus (Gahli and Deucher). There are typical and atypical Loeffler's bacilli; typical but not virulent pseudo-diphtheritic bacilli (Park). Virulent Loeffler's bacilli may cause a local non-contagious disease, fibrinous rhinitis (Scheinmann). The pseudo-membrane, formerly the clinical and pathological criterion of diphtheria, is not a product of a specific bacillus, but may be produced by streptococci, staphylococci, or the bacterium coli. The bacillus diphtheriæ is hardly ever present alone (Danelo and Ruault). Severe septic diphtheria is not caused necessarily by an

associated infection, for in some cases streptococci cannot be found in the internal organs, and when they are the symptoms during life may not have pointed to septic diphtheria at all (Kuttner and others).

After all this it is not surprising that statistics have been made to prove (1) that the serum treatment has almost suppressed mortality, and (2) that since this treatment was begun the mortality is as high as ever. Thus, without considering the conflicting statistics of individuals, it has been shown that the serum has increased the mortality at Trieste, St. Petersburg, and Moscow; has diminished it enormously at Paris, Berlin, Vienna, and Budapest; and has had no influence on it at Leipzig, Milan, and London. In America, Coakney has shown for Boston, New York, and Brooklyn: (1) that the declared cases of diphtheria have increased enormously; (2) that though the relative mortality (percentage of declared cases) has diminished since the serum treatment, the absolute mortality calculated on the total population is as high as in the worst years since 1882. Though the public demand that every clinician should have an opinion as to the value of serum, either for or against, statistics are perfectly useless up to now in helping him to form one. He must therefore fall back on his own resources, which are those of clinical empiricism. It is enough for him that the serum acts, and that chance has been excluded from the cases where it succeeds—that is, he must consider the individual, not masses of statistics. No one who has seen the membrane clear up, the natural voice return if the nares are involved, and convalescence begin within forty-eight hours in a case which experience shows to be very severe, can doubt the good done by the serum. Its failure in certain cases is no reason for doubting its use. Everything points to the fact that diphtheria toxins vary greatly in virulence, and it is possible that bacteriology may prove eventually that some diseases, considered absolutely specific, are not so. For this, theories of bacterial symbiosis have prepared us, and Windrath has shown that there is nothing specific in the toxins of specific bacteria. It accords with this, that the author has often used the serum in cases which were clinically severe diphtheria, but where bacteriology showed streptococci to be in the majority, with as much success as in those caused by Loeffler's bacillus alone.—*British Medical Journal*, Feb. 12, 1898.

# The Therapeutic Gazette

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## Leading Articles.

### THE TREATMENT OF INFANTILE DIARRHEA.

With the advent of the hot season physicians will once more meet with a large number of cases of more or less severe diarrhea affecting young children, and in many instances will come face to face with such grave symptoms that the malady will become in their eyes one of the most serious which they have to treat. Further than this, the mortality from the diarrheal affections classed under the head of cholera infantum is so large that we must all take great interest in any measures which look towards the diminution of its severity. During the past year a valuable practical paper was published by Langford Symes in the *Dublin Journal of the Medical Sciences*. He divides the diarrheas of children into those which are dyspeptic and those which are infective. These dyspeptic diarrheas usually arise from the digestion of foods unsuited to the digestive apparatus of young children, or their use in quantities over and above that which the stomach and intestines can utilize. The infective diarrheas, on the other hand, are

produced by the ingestion of milk or other articles of food which have undergone decomposition changes or which contain infectious micro-organisms. In either case the chief symptoms, as is so well known, consist of restlessness, abdominal pain, frequent grassy-green and watery stools containing now and again small amounts of mucus and possessing a peculiarly foul-smelling or mousy odor, which is peculiarly characteristic. If the diarrhea persists, the child, even in a very short time, suffers from thirst, a pinched face, and pursed expression about the mouth, with sunken eyes and cold skin. Sometimes, too, there may be nervous symptoms manifested in twitching of the hands and associated with depression of the fontanel.

Where the cases are more prolonged prior to the development of serious general nervous symptoms, the patient loses weight and is sometimes thought to have consumption of the bowels. The stools are particularly offensive, and in nearly all cases contain undigested coagula of casein. Quite frequently, because of the constant tenesmus and straining, prolapse of the rectum takes place. Finally, that state which has been called spurious hydrocephalus, a condition of depression of the fontanel, pinching of the face, and cool skin, apathetic eye, and lastly coma, is developed. These conditions can be avoided in a certain proportion of cases by the use of pure milk or by sterilizing it, by the maintenance of proper ventilation, and by removing the child from the exposure and great heat. But in a certain proportion of cases even these protective influences seem to fail, and where the infection is severe the symptoms come on with such appalling severity and rapidity that they necessarily create great alarm. Under these circumstances the chief danger which threatens the patient is collapse, and the treatment is therefore directed towards its prevention, towards support of the system, and for the purpose of removing the cause of the attack. Symes thinks that the general management should consist in rest, washing the mouth with glycerin or borax or diluted peroxide of hydrogen in the strength of two per cent., removing irritating particles of decomposing food from the bowels by a dose of castor oil, amounting to a drachm for a child of a year, or half a drachm for a younger child. He suggests the following prescription in attacks which are somewhat subacute or chronic and where there is no great need of hurry in unloading the bowels:

- ℞ Olei ricini, 5 minims;  
Mucilaginis acaciæ, 15 minims;  
Aque menthæ piperitæ, 1 drachm.

This is to be given every hour until the bowels are moved. He also directs that one of the most important factors in the case is to change the milk at once, except in the case of infants who are at the breast, who should be allowed no other food or drink save the breast milk. In other infants only milk diluted one-half should be given, this dilution being made of pure water or by the use of barley water. In children who are old enough to take soda water, the bubbles of gas will prevent the formation of tough curds. Peptonized milk may be employed, or even condensed milk may be used. In some cases, particularly where there is reason to suspect the milk supply, sterilized milk should be employed or milk that has been Pasteurized, but it must be remembered that Pasteurization does not render innocuous milk which is derived from tuberculous animals. Careful attention should also be paid to the feeding-bottle, which should have no tube, the nipple and the glass being kept scrupulously clean. All starchy foods should be eliminated from the diet, and it may be well in some cases to give small doses of calomel. In other instances after the bowels have been thoroughly moved the salicylate of bismuth may be used. Sometimes minute doses of Dover's powder may be added to it.

We have already called attention in previous years in the editorial columns of the *THERAPEUTIC GAZETTE* to the great usefulness of intestinal irrigation in many of these cases. The irrigation may extend high up into the bowel and be performed with the aid of a soft-rubber catheter and a tube running from the ordinary fountain syringe. The fluid used had better be normal salt solution. Washing out the stomach has been recommended by some physicians, but as a matter of fact lavage in children is exceedingly difficult to perform.

The question as to how much we shall administer sedatives is a grave one. Personally, we have rarely, if ever, seen a case in which it seemed to us that nervous sedatives were indicated. Symes, however, suggests the use of the following prescription for a child of three months:

- ℞ Tincturæ opii camphoratæ, 1 minim;  
Glycerini acidi carbolici, 2 minims;  
Olei ricini, 5 minims;  
Mucilaginis acaciæ, 15 minims;  
Aque menthæ piperitæ, enough to make 1 drachm.

This is to be given every few hours.

As restoratives for threatened collapse we should give the child abundance of pure fresh air, brandy or strong coffee if needed, and sometimes from one-fourth to one-half grain of camphor suspended in mucilage with glycerin and used as a general diffusible stimulant. Should evidences of great exhaustion and feebleness be apparent as the result of profuse purging, which has resulted in depriving the tissues of fluid, hypodermoclysis with normal saline solution is to be performed.

#### UNTOWARD EFFECTS OF CHLOROFORM RARELY RECOGNIZED.

Notwithstanding the fact that chloroform has been administered so many thousand times throughout the civilized world during a period covering many years, the profession is constantly learning additional facts in regard to its powers, and, as is well known, medical literature has teemed during the last decade with experimental and clinical reports concerning its physiological action, its practical advantages and dangers. Those that have been most interested in the drug have also recognized that it is capable of undergoing decomposition both when in its fluid and vaporous state, and that in both of these conditions the results of the decomposition are capable of producing serious symptoms in a patient and even in those who surround him during the operation.

We have been surprised to find how few surgeons and physicians are acquainted with the fact that chloroform vapor is decomposed in the presence of the ordinary gas flame and that irritant fumes are thereby set free in the air of the room which are capable of seriously inflaming the air-passages of both operator and patient, although as a rule it would seem that the patient fares better than those who are carrying out the operative procedure.

These irritant vapors that we have spoken of consist principally of hydrochloric acid and chlorine, and both of these are known, of course, to be powerful inflammatory agents. In this connection two reports which have recently been made to the London *Lancet* are of interest. One of these is made by the Berlin correspondent, who writes of such an accident having occurred at the Catholic Hospital at Herne, Westphalia; and Dr. Waddell writes to *The Lancet* of May 12 of a case in which chloroform was administered in a small room poorly ventilated, which was

warmed by an oil-stove and illuminated by a lamp and candle. During operation about half an ounce of chloroform was spilled when an attempt was made to refill the drop-bottle, and almost immediately a pungent, disagreeable smell was noticed, which speedily attacked the whole respiratory tract of the attendant physicians to such an extent that the operator was almost overpowered by it and the nurse was seized with a violent attack of coughing. Dr. Waddellow felt the results of the irritation of his bronchial mucous membrane for a period of four days, and this notwithstanding the fact that the purest chloroform obtainable, possessing no odor of any free chlorine, had been employed.

The results at the Herne Catholic Hospital were far more serious than this. The writer of this editorial was taught a similar lesson some years ago when using chloroform in a room with a very low ceiling, which had a gas-jet close to the chloroform inhaler. So intense was the irritation of the respiratory passages produced by the fumes of the chlorine under these circumstances that a suffocative spasm of the larynx occurred, requiring that fresh air be obtained at once, and this was followed by a severe laryngitis which lasted for a period of nearly two weeks and was accompanied by a mild ulcerative process. It is important to remember, therefore, that chloroform is under certain circumstances far more capable of producing serious respiratory difficulty than is ether, and in every instance where it is possible electric light should be utilized when this drug is used for anesthetic purposes. Where this light is not obtainable the lamp or gas-jet should be so arranged as to be far removed from the inhaler and the light be concentrated upon the wound by means of a reflector.

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#### THE TREATMENT OF GASTRIC ULCER BY LARGE DOSES OF BISMUTH.

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Gastric ulcer has been treated by very many methods, some of which radically differ from one another, and the use of bismuth in this affection is by no means recent. Within the last few years, however, it has been suggested by Fleiner that good results follow the use of massive doses of this substance. This clinician employed as much as 300 to 450 grains of bismuth in suspension in water, poured into the stomach by means of a stomach tube after previous lavage, and in his paper he referred to the experi-

ments of Mattheys upon the action of bismuth in hastening the cure of experimentally produced ulcers in the stomachs of dogs.

At a recent meeting of the Manchester Therapeutical Society, Dreschfeld read a paper upon this subject in which he protested against the use of the stomach tube as a method of administering these large doses of bismuth, on the ground that it is not wise to pass a tube into an ulcerated stomach. He stated that he had employed from thirty to fifty grains of bismuth sub-nitrate three times a day, suspended in water and swallowed without the aid of a tube. Under these circumstances he found the condition rapidly relieved, vomiting ceased, and digestion improved, although he allowed light nitrogenous food, such as fish or fowl, to be given. Ultimately the ulcer healed. These large doses of bismuth have never in his experience produced constipation, but rather a slight tendency to pain and diarrhea. Dreschfeld has also found this method useful in both acute and chronic cases and also in acid dyspepsia with neurosthenic condition.

The writer of this editorial has also employed these large doses of bismuth since reading Fleiner's paper with considerable success, and regards the method as being so valuable as to be worthy of trial in all cases in which this obstinate affection presents itself for treatment. It will be interesting to notice whether any evidences of chronic bismuth poisoning, such as have been produced from the external application of large quantities of bismuth, will be recorded.

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#### WHAT OPERATION CAN DO FOR CANCER OF THE TONGUE.

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The results following operative interference in cases of cancer of the tongue have been so uniformly unsuccessful that certainly the medical practitioner, and often the surgeon, is loath to advise active intervention. In the slight lesions, for the removal of which a partial operation is undertaken, the disease returns either *in loco* or in the neighboring lymphatic glands. When the tongue is thoroughly infiltrated its total removal is required. It is commonly accepted that this operation has to its discredit a large immediate mortality, and even though the patient recover from operation that the disease will certainly recur. A study of hospital statistics

in general and the summarizing of individual experience, which in this country is certainly limited, would justify the gloomy prognosis just outlined and would seem to indicate that conservatism might offer the patient a longer life than would intervention.

A contribution by Butlin based on a personal experience of 102 patients, all of whom except seven he has been able to trace, gives ground for the belief that the prognosis of tongue cancer is not more serious than that of this affection in other regions of the body, and offers further encouragement to the surgeon to operate at as early a period as possible and to make his operation rationally extensive.

Of Butlin's hospital cases there were sixteen per cent. of cures—*i.e.*, that percentage well more than three years after operation. Of the private cases twenty-six per cent. were cured. Moreover, the mortality of operation in the private cases was about one-ninth that of the mortality of the hospital cases.

The reason for much better results in private practise is based upon the fact that such cases always come earlier for operation.

Of the cured cases, it is to be noted that the disease in the large majority of them is situated in the anterior two-thirds of the tongue. There is evidence, however, to show that even when it is situated far back of the dorsum, or along the border in the neighborhood of the anterior half arches of the fauces, it may be treated with success, provided it has not invaded the tonsillar and neighboring regions. Among the private cured cases there was not one in which the glands were removed at the time of operation on the tongue or afterwards, thus showing that all of the successful cases were taken early. Among seven cured hospital cases five had the glands removed at or after operation, and in four of these they were proved by microscopic examination to be cancerous.

In the complete group of 102 cases the entire tongue was only removed sixteen times, and an analysis of these sixteen cases shows that four of the patients died of the operation and two of them shortly after their return home; that five suffered from recurrence *in situ*; and only one was cured.

The question of the removal of the entire tongue is one of considerable importance. The operation is a dangerous one; the patient is crippled not only in regard to speech, but in regard to taking solid food, and there is proof that a removal of a portion of the tongue is sufficient to cure a considerable

percentage of patients and to save a much larger percentage of patients from a recurrence of disease within the mouth.

Butlin states that he always aims to remove the cancer with three-quarters of an inch of apparently healthy tissue around it in every direction. When, however, the disease is on the border of the tongue, his routine practise is to remove one-half the tongue for an inch behind the margin of the disease.

Butlin's tables show in all thirty cases free from recurrence; six from one to two years, four from two to three years, and twenty for more than three years. Some of these have remained well for upwards of twelve years. He states that a comparison of these results with those which he was able to furnish ten or eleven years ago is so satisfactory that they lead to a more hopeful view of the operative treatment of cancer of the tongue than formerly. At that time the statistics collected by Barker afforded only five per cent. of cures on the three years' limit, in a table of 170 patients. Butlin holds it is fair to say that the prognosis of cancer of the tongue, when the disease is situated in the anterior two-thirds, whether in the substance or on the border of the organ, is not by any means bad, when compared with the prognosis of cancer of most other parts of the body.

Butlin points out that lymphatic involvement is the most serious and unmanageable complication with which the surgeon has to deal. The disease, though malignant, is locally malignant, for it is so constantly limited to the tongue and the neighboring lymphatic glands of the neck that the prospect of dissemination may be dismissed. About seventy per cent. of the cases can be so successfully treated by operation that there is little fear of recurrence *in situ*, but of these seventy persons probably thirty will die—perhaps as many as forty—of affections of glands of the neck.

Von Winiwarter noted that in most cases glandular involvement occurred only after the disease had existed several months, but that exceptionally it occurred within a few weeks of the primary outbreak of the disease, and in a certain few cases the cancer of the mouth and the glandular disease were discovered at the same time. There is no means of discovering which cases of cancer of the tongue are likely to be associated with secondary cancer of the glands, unless there is enlargement of the glands at the time of operation on the tongue. Nor can we foretell how soon the removal of the cancer of

the tongue will be followed by secondary affection of the glands of the neck. Hence it is wise to regard every patient with cancer of the tongue as having the glands of the neck already inoculated.

The procedures which are naturally suggested by this conception are to clear out the glands anatomically connected with the affected portion of the tongue or to wait until they are slightly enlarged, hence probably diseased, before performing this operation.

The expectant method, though plausible, is open to many and obvious objections. As to the advisability of cleaning out the chain of glands in anatomical relation to the affected part of the tongue, the greatest uncertainty exists as to the group of glands which is likely to be affected in any individual case of cancer. Sometimes the affected glands are behind the angle of the jaw; sometimes they are in the floor of the mouth, behind the symphysis of the lower jaw; sometimes they are half-way down the neck on a level with the thyroid cartilage. In spite of this uncertainty Butlin finds that a study of anatomical plates, together with a careful consideration of the clinical course of cancer, shows that the lymphatics of the tongue are so disposed that infection passed through one or more of four groups of glands: (1) the submental group, which lies beneath the floor of the mouth behind the lower jaw; (2) the submaxillary, some of which actually lie in the substance of the salivary gland; (3) the parotid, and (4) the carotid, which lie over the course of the carotid artery and particularly over the bifurcation of the common carotid. As a rule all the lymphatics of the anterior half of the tongue, whether from the dorsum, the border, or the under aspect, pass through one or more of the three anterior groups of glands. Hence in the majority of cancers of the tongue, especially those that can be removed so that they are not likely to occur *in loco*, it may be foretold that they will inoculate one or more of the three anterior groups of glands, particularly the submaxillary and carotid groups. The removal of these three groups would then offer a reasonable prospect of preserving the patient, in any given case, from glandular affection. If in addition the parotid glands, or those of them most likely to be affected, could be removed during the same operation, an increased prospect of success would be afforded, since it cannot be doubted that occasionally lymph from the

anterior portion of the tongue does pass directly or indirectly through this group.

Butlin states that bearing these considerations in mind he has devised and carried out an operation which removes all the contents of the great anterior triangle of the neck, including the submaxillary salivary gland. The anterior triangle is thoroughly exposed by an incision about seven inches long on the anterior border of the sterno-mastoid muscle from the mastoid process to below the thyroid cartilage, and a second incision from the symphysis of the lower jaw to the first incision about the upper level of the thyroid cartilage, and raising up the two triangular flaps which are thus mapped out. The dissection is commenced from the apex of the triangle below, and carried upwards. The large vessels are exposed for a considerable distance, and finally the submaxillary salivary gland is taken out. A very careful dissection is made of the triangle so that the connective tissue and glands are all taken out in one continuous mass. Search is made between the muscles in front for one or two deeper-seated lymphatics, and the glands in front of the parotid gland and about the angle of the jaws are removed with the other contents of the triangle. The submental and parotid glands are not so easily and certainly removed in this operation as the submaxillary and carotid groups. The dissection occupies from an hour to an hour and a quarter. Experience has taught Butlin that disease of the tongue should be first removed, and when the patient has had time to recover from this operation, and can take food well, the removal of the contents of the anterior triangle may be undertaken without fear.

Butlin's results, based on a singularly extended experience, are certainly most encouraging. They are not dependent upon the thorough dissection of the lymphatic system of the neck, since he has practised this procedure only within the last eighteen months, nor are they based upon more radical or extensive operations than those commonly performed by surgeons. They seem to prove that the gloomy prognosis of cancer of the tongue is dependent in the main on the unfortunate results of hospital experience, and they accentuate the importance of urging upon medical men and upon the laity the need of early surgical attention to every lesion of the tongue, no matter how apparently trivial, which does not yield quickly or kindly to ordinary cleansing treatment.

## Reports on Therapeutic Progress

### *THE INFLUENCE OF BORAX AND BORIC ACID UPON NUTRITION, WITH SPECIAL REFERENCE TO PROTEID METABOLISM.*

In the first number of the *American Journal of Physiology* for January, 1898, CHITTENDEN and GIES tell us that moderate doses of borax up to five grammes per day, even when continued for some time, are without influence upon proteid metabolism. Neither do they exert any specific influence upon the general nutritional changes of the body. Under no circumstances, so far as they have been able to ascertain, does borax tend to increase body weight or to protect the proteid matter of the tissues.

Large doses of borax, five to ten grammes daily, have a direct stimulating effect upon proteid metabolism, as claimed by Gruber; such doses, especially if continued, lead to an increased excretion of nitrogen through the urine, also of sulphuric acid and phosphoric acid.

Boric acid, on the other hand, in doses up to three grammes per day, is practically without influence upon proteid metabolism and upon the general nutrition of the body.

Borax, when taken in large doses, tends to retard somewhat the assimilation of proteid and fatty foods, increasing noticeably the weight of the feces and their content of nitrogen and fat. With very large doses there is a tendency toward diarrhea and an increased secretion of mucus. Boric acid, on the contrary, in doses up to three grammes per day, is wholly without influence in these directions.

Borax causes a decrease in the volume of urine, changes the reaction of the fluid to alkaline, and raises the specific gravity, owing to the rapid elimination of the borax through this channel. Under no circumstances have the authors observed any diuretic action with either borax or boric acid. The latter agent has little effect on the volume of the urine.

Both borax and boric acid are quickly eliminated from the body through the urine, twenty-four to thirty-six hours being generally sufficient for their complete removal. Rarely are they found in the feces.

Neither borax nor boric acid have any influence upon the putrefactive processes of the intestine as measured by the amount of combined sulphuric acid in the urine, or by Jaffe's indoxyl test. Exceedingly large

doses of borax are inactive in this direction, not because the salt is without action upon micro-organisms, but because of its rapid absorption from the intestinal tract.

Borax and boric acid, when given in quantities equal to 1.5 to 2 per cent. of the daily food, are liable to produce nausea and vomiting.

Owing to the rapid elimination of both borax and boric acid, no marked cumulative action can result from their daily ingestion in moderate quantities.

At no time in these experiments was there any indication of abnormality in the urine; albumen and sugar were never present.

### *THE THERAPEUTICS OF VENESECTION.*

ALBERT ROBIN, of Paris, has contributed to the *Medical Press and Circular* of February 9, 1898, his views as to venesection and its value. He tells us that he has in all bled fourteen patients of late; ten of them were benefited thereby, four were not. The four cases of failures were: One case of cerebral hemorrhage, with ventricular distention; one case of acute nephritis, with respiratory uremia. The patient was bled twice in rapid succession, 250 grammes of blood being withdrawn each time. Post-mortem the lungs were found to be in a state of acute edema. The third patient was suffering from Bright's disease due to lead poisoning, complicated with epileptiform attacks and intense dyspnea. He suspected uremia, and withdrew 300 grammes of blood. The patient died the next day, and was found post-mortem to be affected with tuberculous meningitis. The last case was one of cardiac asystole, with cyanosis, in which digitalis had produced no effect. The patient was bled, but derived no benefit therefrom. Post-mortem a rupture of the spleen was found, the hemorrhagic focus being limited by adhesions.

The ten cases in which blood-letting proved beneficial were: One case of uremic coma which had lasted twenty-four hours, with left hemiplegia and conjugate deviation of the head and eyes to the right; 250 grammes of blood was withdrawn, and this was followed within thirty-six hours by disappearance of the cerebral phenomena. One case of dyspneic uremia with hydrothorax, in which bleeding was followed by increased flow of urine and diminution of the dyspnea; the immediate benefit was extremely marked, but the patient died a few days later. One case of uremia with hydrothorax, in which the

patient was bled *in extremis*; he lived three days after the operation. One case of asystole, due to aortic incompetence, with pulmonary congestion. The patient rapidly improved after withdrawal of 200 grammes of blood. One case of nephritis with renal congestion, relieved by the simple withdrawal of 150 grammes of blood. One case of arteriosclerosis with mitral lesions and Bright's disease. The patient improved after blood-letting; he then had a relapse, but once more improved when a further 100 grammes of blood was withdrawn. One case of chronic lead poisoning with mitral and aortic lesions, much enlarged heart, and cardiac cirrhosis. The patient developed attacks of uremia, which improved greatly under blood-letting. One case of uremia in which the patient, who was in a comatose condition when seen, recovered completely. One case of arteriosclerosis with nephritis following upon erysipelas, edema, anasarca, and very severe dyspnea. Digitalis only began to act after 150 grammes of blood had been withdrawn. Lastly, one case of asystole, with anasarca, in which the patient's condition began to improve after the emission of 200 grammes of blood.

The foregoing clinical results confirm those obtained by experiments. There is no doubt that blood-letting was at one time resorted to far too readily, but the practise did not deserve on this account to be so completely discarded from modern therapeutics as has been the case.

We must bear in mind, then, that blood-letting is distinctly indicated whenever it is necessary to stimulate the circulation of the blood, in cases of vascular stasis in mitral and asystolic patients, and in acute edema of the lungs. It may even be asserted that blood-letting, although not specifically indicated against any particular morbid state, constitutes, nevertheless, a valuable adjunct in a number of very dissimilar pathological conditions, provided they present the one element of defective nutrition, or to be more exact, of inadequate organic oxidation.

#### THE ACTION OF ATROPINE AND PILOCARPINE ON PERISTALSIS.

TRAVERSA (*Il Policlinico*, Nov. 15, 1897), being struck by the fact that injections of atropine caused constipation rather than increased emission of feces in horses, has investigated the action of this drug and also of pilocarpine. It was found that pilocarpine

accelerated and strengthened peristalsis, whilst atropine lessened and finally abolished the movements of the intestine. In each case the result is obtained through paralysis or stimulation of the ganglia and nerve endings in the intestine. From this it follows that belladonna is not likely to be of value in constipation from atony of the bowel muscle, but in the lead colic, where it is not improbable that the intestinal ganglia are irritated, belladonna may prove a useful remedy; and indeed in all cases when painful intestinal spasm, due to irritability of the intestinal ganglia, is present, the drug in question may be used with advantage.—*British Medical Journal*, Feb. 12, 1898.

#### THE USE OF MANGANESE IN THE TREATMENT OF DYSMENORRHEA.

Dr. O'DONOVAN writes in the *Medical News* of November 27, 1897, of his experiences with manganese in dysmenorrhea. He tells us that in the *Medical News* of April 6, 1889, he published an article, entitled "A Plea for the Use of the Manganese Compounds in Certain Forms of Dysmenorrhea," in which he drew the following conclusions:

1. The manganese compounds are valuable additions to the therapeutics of dysmenorrhea, and in a certain number of properly selected cases great benefit may be expected from their use.

2. Their use does not interfere in any manner whatever with the administration of iron or the vegetable tonics, but rather aids and is aided by them.

3. The best results from the employment of these remedies may not be obtained at once, and failure should not be confessed until after a continuous trial lasting three months.

4. So far as we know at present, the black oxide of manganese is the most convenient form for administration.

At that time the observations of Ringer and Murrell, of London, called attention to the benefit to be derived from the compounds of manganese in various menstrual disorders, and other clinicians had testified in their favor. Having enjoyed a certain vogue at the time, in the avalanche of new remedies which are being constantly exploited manganese seems to have lost its prominence, and is now seldom referred to. This is a mistake—a remedy, valuable in a number of cases, is being overlooked. That it is one which deserves to be rescued from oblivion and again presented for study and trial is



undoubted. The writer has been using manganese constantly since the appearance of the paper quoted, and is to-day as favorably impressed with it as when he reported his former observations. He holds it to be most valuable in the treatment of dysmenorrhea in unmarried women; and, until it has been faithfully tried during a period of not less than three months without intermission, he would use no other treatment.

Manganese will not relieve all cases; in some it produces no effect whatever, and in some few instances women have complained that their sufferings actually seemed to have been exaggerated; but when it does act favorably, it is such a boon that it cannot be overvalued. Unfortunately, one cannot foretell in a given case whether or not manganese will be of benefit; the writer has known it to fail when he had most reason to expect success, and to relieve when he feared it would fail, so that its use is somewhat empiric, and apt to lead to disappointment. This does not, however, change the fact that a large number of cases of dysmenorrhea may be relieved by its use in a way that no other drug can approach, and often after numerous others have been tried and discarded as useless. Even in these days of manipulative and operative gynecology there are many young women who would prefer to be treated by medicines rather than by instrumental interference; who are very naturally frightened out of the office of a physician who suggests a digital examination as soon as a history of dysmenorrhea has been elicited.

In the writer's hands the best effects from the use of manganese have resulted when the history is of general malaise before the flow begins, with some pain, growing rapidly worse as the flow is about to commence, and pain more or less severe during the first day. A good color or a pale face seems to have no bearing upon the action of the drug; its action appears to be upon the nerve centers concerned in the menstrual function, rather than upon the blood. It is no unusual thing to find a habit of dysmenorrhea which had existed for years yield at once to the exhibition of manganese.

One word about the administration of the drug. Some women experience considerable difficulty in taking it because of a very delicate stomach, which rebels against it. For this reason it is well to begin with a small dose, say one grain at a time, and gradually increase it. The writer has given five grains

three times a day during several weeks without any ill effect, but experience has taught him that three-grain doses will do as much good as a larger quantity, and that failure with that much cannot be changed to success by increasing the dosage. Often it is unnecessary to give even this much, but it may be properly pushed to this limit in doubtful cases.

#### ON THE TREATMENT OF THE HEART FAILURE OF ARTERIOSCLEROSIS.

The *British Medical Journal* of December 11, 1897, contains a paper by C. R. MARSHALL upon this subject. He tells us that his present paper is merely an appendix to an investigation which the writer made some time ago on the antagonistic action of digitalis and the members of the nitrite group. The research was suggested by the increasing use of vaso-dilators with digitalis in practice and the knowledge that little was known of their effect when given in combination. This treatment was first introduced by Huchard, to counteract the vaso-constricting influence of digitalis, and of late years it has been advocated by Balfour, Whittaker, Sansom, LeFevre, Da Costa, Forchheimer, Dabney, and Husemann. It has not, however, received universal approval (see Grainger Stewart), and further information on the point seemed necessary.

The cases of heart failure in which vaso-dilators combined with digitalis are recommended are those in which this condition is associated with thick-walled arteries. Here the peripheral resistance is increased, and it is obviously undesirable to augment it. Digitalis, although it braces up the heart, also contracts the blood-vessels, and in this way sets up a barrier to its cardio-tonic effect. When the vascular tone is lost this contracting influence is beneficial, but in the aged this is rarely the case. "The old bear digitalis badly," and the writer believes this is due to the fact that their arteries are thickened and less elastic.

As far as the heart failure is concerned, it is immaterial whether the arterial changes are the result of age or disease. In both cases the course of affairs, if the disease is allowed to continue, is the same. The simplest case is the physiological one, if such it may be called. From birth to death the structure of the arteries seems to be gradually changing. With the approach of old age the arterial walls become thicker and their elasticity diminishes; the peripheral resistance is increased and the heart hyper-

trophies. But sooner or later the arterial blood-pressure reaches its maximum, the heart begins to fail, and unless treated rapidly runs a downward course. The disease called the "senile heart" (Balfour) has developed. In arteriosclerosis a similar evolution occurs; heart failure sooner or later appears and the vascular becomes a heart affection. As pointed out by Huber, the condition of the small vessels of the heart is an important factor in the production of this heart failure. These vessels undergo the same changes as arteries in other parts of the body, and as they serve for the nutrition of the heart their effect is greater. Under the term "cardiopathies arterielles" Huchard has described several clinical types of this disease, but these are perhaps best considered as part of the general affection.

From a therapeutic point of view the condition may be divided into three stages:

1. Early stage: thickened arteries with slight enlargement (hypertrophy) of the heart; increased intra-arterial blood-pressure.
2. Later stage: arteries somewhat thicker; marked cardiac hypertrophy; high arterial blood-pressure.
3. Last stage: arteries unchanged or somewhat dilated, but heart failing; marked cardiac dilatation; gradually sinking blood-pressure.

The last two stages Huchard denotes as "cardio-arterielle" and "mitro-arterielle" respectively. The first stage he calls "arterielle" (pre-arterielle, Ferreira), although he believes the primary change is in the heart and not in the vessels; and to a certain extent this view seems to be supported by an experiment of Thoma. Balfour, however, says "there is a consensus of opinion that the arterial system . . . is that upon which the finger of decay is earliest laid," and it is the author's own experience. From a therapeutic point of view, however, the origin of the condition is not of great importance; when treatment is required the arteries are always changed.

With the first and second divisions of this table we are not concerned. The symptoms are legion, and as regards treatment probably nothing is so useful as the iodides with an occasional mercurial or saline purge; vaso-dilators are advocated by some, but this treatment has not met with general approval. When, however, symptoms of heart failure set in depletive measures should be avoided and digitalis or some other cardiac tonic given. The question of the vessel-contracting

influence of digitalis now becomes of importance. Is it injurious? In some cases the author thinks not. Even in the heart failure of old age, or approaching old age, we sometimes find the pulse of low tension, although the arteries have thick walls, and in such cases digitalis alone, at least in the earlier stages, is by no means harmful. In the majority of cases, however, the arterial factor is an important one, and as far as possible should be relieved. But can vaso-dilators do this? In other words, are nitrites or the members of the nitrite group antagonistic in this respect to digitalis? Experimental observations lead us to conclude that they are, but not absolutely so. The two groups of substances, in fact, seem to be mutually antagonistic. As far as the effect on the blood-pressure of animals is concerned, digitalis diminishes the effect of nitroglycerin, and in part nitroglycerin counteracts the effect of digitalis. A similar action is obtained in man, but on account of the smaller dosage digitalis exerts less influence on the action of vaso-dilators. The commencement of action of these is delayed, the degree of action is somewhat less marked, and in some cases the duration of action is slightly curtailed. But even in advanced cases of heart disease which have been treated with digitalis for some time, sodium nitrite and its allies will act, although the effect is often comparatively slight. Nitroglycerin is least affected, the solid organic nitrates (erythrol tetranitrate, mannitol hexanitrate) most. As regards nitroglycerin, the delay in its action is rarely more than one minute, and the extent of reduction is but slightly modified; the principal change seems to be a curtailing of its effect. The indications for treatment are clear. For therapeutic purposes vaso-dilators are antagonistic to digitalis, but they seem to require more frequent administration than under normal conditions. The powerful physiological action of nitroglycerin and the comparatively large toxic dose enable us to push it to a considerable extent. But generally this is unnecessary, as digitalis is only given to produce a mild tonic effect. By carefully regulating the dose of this drug the writer believes that the use of vaso-dilators can to a large extent be avoided, but in such cases the dose must of necessity be small. The depressing effect of the vaso-dilators on the heart is of no therapeutic significance in this connection. It is true that experimentally, in large doses, nitroglycerin will antagonize the cardio-tonic effect of digitalis, but in medicinal doses the

depressant action of nitroglycerin is comparatively insignificant, and may be neglected.

The conditions in which the combined use of digitalis and vaso-dilators are indicated are numerous. Just as the only, or almost the only, indication for the use of digitalis is a failing heart, so the only indication for the use of vaso-dilators is a more or less incompressible pulse. Wherever the two are combined—that is, whenever a comparatively high tension pulse exists with heart failure—the combination will be of use. These conditions need not be specified. Marshall refers to angina pectoris. According to one eminent authority, anginal attacks most usually occur when arteriosclerosis is combined with coronary atheroma. It is generally acknowledged that cardiac pain is often accompanied by contraction of the arterioles; but this is not invariably the case, otherwise vaso-dilators would always prove of service, which they do not. In the majority of cases, however, an increased peripheral resistance exists, and sooner or later this reacts markedly on the heart and more rapid weakening follows. The anginal attacks now often subside and symptoms of heart failure develop; as has been said, the anginal case becomes a cardiac one. The administration of digitalis in these has not proved of unmixed benefit. It has toned up the heart, but it has contracted the vessels and the anginal attacks have again developed. To obviate this combination with a vaso-dilator has been tried, and apparently with success.

As regards dose and administration a few words are necessary. It is the universal custom to administer the combined drugs in mixture. This Marshall believes is a mistake. Digitalis acts upon the tissues very slowly. The most soluble preparation—digitalinum verum (Pharmacopœia Germ.)—will not produce an effect on the pulse under four to six hours, and with other preparations the delay is much longer. Sometimes it does not become evident for days. The vaso-dilators, on the other hand, act rapidly; nitroglycerin affects the pulse within two minutes; within three hours its effects have usually passed away; sodium nitrite acts within five minutes and lasts the same length of time; erythrol tetranitrate, in the solid form, commences in twenty to thirty minutes and continues seven to eight hours. From the mixture, therefore, we shall get nothing at first but the effect of the vaso-dilator; later we shall probably be giving an excess of digitalis. Owing to the slow assimilation

and retention of digitalis in the system we get practically a constant effect, at least for short periods, but this is not the case with the vascular drugs, especially where these are given infrequently. To keep down the tension of the pulse nitroglycerin and sodium nitrite should be given at least every three hours, and erythrol tetranitrate every six. Given less frequently the patient is periodically subjected to periods of high arterial tension of varying duration, which is what we wish to avoid. As in many cases it is sufficient to give digitalis once a day after it has commenced to act, it would seem advisable to give the two substances separately—the vaso-dilator frequently, the digitalis less frequently. The author suggests as a type of combination the administration of erythrol tetranitrate every six hours and one of the French granules of digitalin every one, two or three days, according to the progress of the disease and the effects of previous treatment. If a greater vascular effect was desired nitroglycerin frequently would probably be most beneficial. Other combinations might be used, but it is essential that the drugs should be used rationally and with a knowledge of their pharmacological action.

The combination of digitalis and spiritus ætheris nitrosi in mixture form seems highly reprehensible. The active vaso-dilator of this substance is ethyl nitrite, a gas insoluble in water; consequently it rapidly disperses when made into a mixture, and in a comparatively few hours has almost totally disappeared. If given at all sweet spirits of nitre should only be mixed with water at the time of administration.

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*A FURTHER STUDY OF THE INFLUENCE  
OF ALCOHOL AND ALCOHOLIC DRINKS  
UPON DIGESTION, WITH SPECIAL  
REFERENCE TO SECRETION.*

An exhaustive research on this interesting topic, carried out by CHITTENDEN, MENDEL, and JACKSON, and published in the *American Journal of Physiology* for March, 1898, is of sufficient practical value to require attention. Some of the more important conclusions to be drawn from the results of the experiments which they have reported may be advantageously summarized here.

Upon the secretion of saliva, the presence of strong alcohol, or an alcoholic beverage in the mouth, has a direct stimulating effect leading to a sudden increase in the flow of saliva. This acceleration of secretion, how-

ever, is of brief duration. The stimulating effect is manifested not only by an increase in the volume of the secretion, but also by an increase in both organic and inorganic constituents. The effect produced is in no sense peculiar to alcohol, but is common to many so-called stimulants, such as dilute acid (vinegar), ether vapor, etc. Indeed, the effect is precisely analogous to that induced by an increase in intensity of stimulation, when the salivary glands are electrically excited through their nerves.

As to the possibility of alcoholic fluids absorbed from the stomach giving rise to an indirect stimulation of salivary secretion, or exercising any appreciable influence upon the composition of the secretion, their results give a negative answer. Thus, alcoholic fluids introduced directly into the stomach (of dogs) by injection through the stomach wall, thus doing away with any local action in the mouth, produce no appreciable effect upon the rate of secretion, as induced by a constant external stimulus, of either submaxillary or sublingual saliva. Even doses of alcohol sufficient to produce prolonged narcosis when introduced in this way fail to check the flow of saliva. There is likewise no specific influence exerted on the composition of the secretion. Hence, so far as their results go, alcohol and alcoholic fluids are without any specific stimulation of secretion while in the mouth cavity.

Upon gastric secretion, alcohol and alcoholic fluids have a marked effect, increasing very greatly both the flow of gastric juice and also its content of acid and total solids. Further, this action is exerted not only by the presence of alcoholic fluids in the stomach, but also indirectly through the influence of alcohol absorbed from the intestines. Thus, ordinary ethyl alcohol introduced into the empty stomachs of dogs, with the duodenum ligated, shows a marked stimulating action upon gastric secretion—as compared with the action of water under like conditions—increasing not only the volume of gastric juice very greatly, but also its acidity, content of solid matter, etc. Moreover, alcohol absorbed from the intestine, the latter being entirely shut off from the stomach, may likewise cause stimulation of the gastric glands, with a marked increase in the rate of secretion, etc. Whiskey, brandy, sherry, claret, beer, and porter, all agree in producing stimulation of gastric secretion. Further, as already stated, the gastric juice secreted under alcoholic stimulation is

more acid, contains more solid matter and more combined hydrochloric acid than the ordinary secretion. It is likewise strongly proteolytic.

If these results are considered in connection with our previous observations upon the influence of alcohol and alcoholic drinks upon the purely chemical processes of gastric digestion, it is seen that side by side with the greater or lesser retardation of digestive proteolysis caused by alcoholic beverages there occurs an increased flow of gastric juice rich in acid and of unquestionable digestive power. The two effects may thus normally counterbalance each other, though it is evident that modifying conditions may readily retard or stimulate the processes in the stomach according to circumstances. Foremost among the latter is the rapid disappearance of alcohol from the alimentary canal.

Since any influence exerted by alcohol or alcoholic beverages upon the solvent or digestive power of the gastric juice in the stomach must depend upon the presence of alcohol in the stomach contents, it follows that the tendency toward rapid removal of the alcohol from the alimentary tract by absorption must necessarily diminish correspondingly the extent of the retardation of gastric digestion which the presence of alcohol in the stomach may occasion. Since, however, the stimulation of gastric secretion induced by alcohol is brought about not only by the direct action of alcohol in the stomach, but also by the indirect action of alcohol absorbed from the intestine, it follows that possible inhibition of the digestive action of the gastric juice would probably be of shorter duration than the stimulation of secretion, and that consequently in the body alcoholic fluids would hardly lead to any retardation of gastric digestion. This point has been very carefully and thoroughly tested by numerous experiments on healthy dogs with gastric fistulæ, using proteid test meals, with the result that, certainly in the stomachs of dogs, digestion is not retarded in any pronounced degree under the influence of alcohol or alcoholic fluids. Of hastened digestion, the results obtained give little or no suggestion, and we must therefore conclude that the two diverse factors above referred to more or less counterbalance each other, so that gastric digestion in the broadest sense of the term is not markedly varied under the influence of alcohol or alcoholic fluids. This conclusion, it may be mentioned, stands in perfect har-

mony with the results of the investigations of Zuntz and Magnus-Levy regarding the influence of alcohol (beer) on the digestibility and utilization of food in the body. These investigators found by a series of metabolic experiments on men with diets largely made up of milk and bread, and on individuals accustomed and unaccustomed to the use of alcoholic beverages, that the latter did not in any way diminish the utilization of the food by the body.

Especially worthy of note is the rapid disappearance of alcohol from the stomach and alimentary tract when alcoholic fluids are taken. As results show, the introduction of 200 cubic centimeters of thirty-seven-per-cent. alcohol into the stomach of a dog with the duodenum ligated at the pylorus may be followed by the nearly complete disappearance of the alcohol in three to three and a half hours by absorption through the stomach walls into the blood. With the outlet from the stomach into the intestine open, the rate of absorption of alcohol is greatly increased. We may well believe, as stated by Ogata, that when six to eight grammes of alcohol is taken into the stomach in the form of wine or beer, that eighty to ninety per cent. of the alcohol will disappear from the alimentary tract inside of half an hour. Indeed, the writers' experiments on dogs with gastric fistulæ lead to this conclusion. Thus, in one experiment fifty cubic centimeters of twenty-per-cent. alcohol was introduced into the stomach, and on withdrawing the stomach contents half an hour later no alcohol whatever was found in the forty cubic centimeters of fluid obtained. In view of this rapid disappearance of alcohol from the alimentary tract it is plain that alcoholic fluids cannot have much, if any, direct influence upon the secretion of either pancreatic or intestinal juice.

#### THE TREATMENT OF IDIOPATHIC ULCERS OF THE CORNEA IN CHILDREN.

Mr. JOHN GRIFFITH in *Treatment* of December 9, 1897, in speaking of vascular or strumous ulcers of the cornea, emphasizes the fact that the symptoms are invariably severe, that the poor sufferer avoids the light, and mopes away in a corner of the room with his head buried in a pillow or in his hands damped with tears. The lachrimation is profuse, the scalding tears spurting out from between the lids when an attempt is made to separate them. The nose also runs with

lacrimal secretion, in consequence of which we find eczema around the nasal orifices as well as the palpebral fissures. The blepharospasm is extreme, and a proper examination often demands a general anesthetic.

The poor parents are troubled at seeing their child, perhaps their only one, suffer in this manner, and it is difficult for them to carry out the treatment prescribed.

Here is a child, predisposed by heredity to low types of inflammation, and rendered weak through errors of diet, bad hygiene, or protracted convalescence after one of the exanthems, suffering from strumous keratitis. How are we to cure it? The cornea, being by nature an avascular structure, constitutes one of the earliest indicators of physical weakness; it is, in fact, a natural tissue-dynamometer.

The constitutional treatment recommended in the other forms of keratitis will hold good here; it will only be necessary to enter into the question of local treatment.

An ointment composed of atropine, cocaine, and yellow oxide of mercury, applied night and morning, with massage, is sufficient in most instances to effect a rapid cure.

℞ Hydrarg. oxid. flav., gr. x;  
Cocain. hydrochlor., gr. x;  
Atropinæ sulphat., gr. ij;  
Vasellini puriss., 3 j.

Fiat ung. Nocte manequē utend.

Should the eye be intolerant of the mercurial salt, it must be left out till the symptoms are subsiding. If the ointment still irritates, the following drops should first be applied:

℞ Acidi borici, gr. xv;  
Cocain. hydrochlor., gr. x;  
Atropin. sulphat., gr. ij;  
Aque destillat., ad 3 j.

Ft. guttæ. Ter die utend.

Should the lachrimation still be profuse and dermatitis ensue, the strength of the atropine should be increased, for it will arrest the secretion of tears—the source of the eczema—and exert then more fully its sedative action. The eczema must be treated with boric acid ointment.

If after a fortnight or three weeks' treatment the symptoms do not subside, one of two methods may be adopted—either anesthetize the child and cauterize the ulcers, or better still, paint the outside of eyelids with some pure nitrate of silver stick. It is a plan recommended by Argyll-Robertson, and the rapidity with which the symptoms subside is simply marvelous. Another plan of treating chronic ulcers is to evert the eyelids and

paint the conjunctiva with a solution of nitrate of silver (gr. x, ad  $\frac{3}{4}$  j), even if they are not secondary to conjunctivitis. This procedure Griffith has found serviceable, though it should only be adopted when the ulcers are of long standing.

A few remarks as to the general care of the child. Daily outdoor exercise is very necessary; tinted goggles are far preferable to bandages or shades; and during the daytime the child should never be allowed to be in darkness—merely a dim, religious light—for otherwise the photophobia will become exaggerated, and the resulting blepharospasm will originate a chronic state of affairs which we wish to avoid. Stooping the head is bad and encouraged by the use of broad shades, but obviated by tinted goggles.

In conclusion, Griffith mentions the likelihood of corneal perforation and prolapse of iris. If Descemet's membrane is seen protruding as a vesicle, a timely paracentesis of the anterior chamber will anticipate Nature and be less harmful. If an anterior synechia has been acquired, an iridectomy at a later date may be required.

#### A REVIEW OF THE LITERATURE OF KOCH'S TUBERCULIN "R."

J. DUTTON STEELE sums up the facts in regard to this bacterial product in the *International Magazine* for December, 1897, as follows:

The new preparation, if uncontaminated, does not seem to be more harmful than the old tuberculin if very carefully given. The dosage suggested by Koch is probably too severe. Much is left to be desired in the preparation of the material. In its present form it is usually contaminated. The greatest element of danger is the possibility of the presence of living tubercle bacilli. It may also contain streptococci, diplococci, staphylococci, and various saprophytic bacteria. Certain outputs of the substance are clearly stronger than others and more likely to cause serious reaction.

The injections are accompanied by much discomfort to the individual. The point of entrance of the needle usually becomes the seat of considerable inflammatory reaction and occasionally of abscess formation. Much of this may be accounted for by the contamination of the preparation or faulty asepsis in its administration; but even in the absence of the former and with extreme care in the latter, as in the series reported by Bussenius,

some infiltration may occur. Very marked systemic reaction occurred in some part of the course of injection, but there is a reasonable suspicion that this may be caused by the apparent variation in strength of the preparation. It is possible that, if this uncertainty is overcome, immunity against the products of the microbe may be reached without undue reaction.

The immediate effects of the preparation upon existing lesions of the lung, larynx and middle ear are too indefinite to admit of any certain opinion being formed concerning them. In lupus, in various suppurating tracts, and in one noticeable case of tuberculosis of the uterus and its appendages, the remedy seemed to be of value; but whether of greater worth than the old tuberculin can only be determined by longer observations.

Koch's experiments apparently established the fact that in them an immunity against both the bacteria and their products could be obtained, and inasmuch as several patients after completing the course of injections stipulated by Koch received large doses of the old tuberculin without reaction, it would seem as if an immunity against the products of the bacilli could be produced in man. Whether such individuals possess also an immunity against the bacteria themselves, and therefore are protected against reinfection, must be settled by observations extending over a longer period of time. The observation of Baudach in this connection is pertinent: "The question of the production of immunity is unsettled. If there is none produced, then the only point of difference between tuberculin 'R' and the old tuberculin is the greater toxicity of the former. The class of cases in which the use of the remedy is justifiable is very limited."

#### THE TREATMENT OF APOPLEXY.

In the first number of *La Médecine Moderne* for 1898 GRASSET, in speaking of the treatment of apoplexy, refers first to the usefulness of revulsion, and secondly, to the means that should be resorted to for modifying arterial tension. For this purpose he believes that venesection is useful in many cases, particularly if there is circulatory excitement and general turgescence. Revulsion is to be obtained by the use of purgatives. Repeated small doses of calomel in milk may be used, or if these are not sufficient, the following mixture may be given every quarter of an hour until the bowels are moved:

- ℞ Croton oil, 1 minim;  
 Castor oil,  
 Oil of sweet almonds, of each 1 ounce;  
 Syrup of lemon, 2 ounces.

It may be well to aid the movement of the bowels by the use of glycerin injections, or of oil, or by the use of sulphate of sodium solutions. Counter-irritation by the way of mustard plasters to the arms and legs may be used. If albuminuria does not exist as a result of renal disease, blisters may be applied to the thighs. Should a condition of cardiac and circulatory feebleness develop, ammonium may be given or caffeine may be used. In other instances camphorated oil (ten-per-cent. strong) may be given in the dose of fifteen to thirty minims every few hours; and finally, injections of artificial serum are suggested. These, however, we should regard as dangerous. After the acute symptoms have passed by care should be taken to support the patient by the use of milk and bouillon, by the administration of bitter tonics, such as kola, and perhaps by the use of cognac or other concentrated alcoholic stimulant.

#### THE TREATMENT OF FATTY HEART.

PLIQUET in *La Presse Médicale*, No. 7, 1897, discusses the causes of fatty heart and its treatment. It comes, as he points out, in the obese and gouty and as a result of chronic poisonings, such as antimony and arsenic; it also follows the infectious diseases, such as typhoid and puerperal fever in particular. Where it occurs in the obese and is not a true fatty degeneration, the administration of thyroid gland may be of advantage; if the patient is accustomed to the gland moderate exercise is permissible. A proper diet should also, of course, be ordered for such patients. Laxatives should be freely given and diuretic waters should be administered. There should be an absolute avoidance of alcoholic liquors and of tobacco.

Pliquet believes that the efficacy of thyrioid preparations in such cases is incontestable. Where the heart has undergone fatty degeneration good results are obtained by the use of caffeine and ether, or sparteine may be given subcutaneously as follows:

- ℞ Sulphate of sparteine, 15 grains;  
 Distilled water, 2 ounces.

Ten to twelve minims of this solution may be given hypodermically every two hours.

Pliquet believes that sparteine is particularly of value because of its long-sustained influence upon the heart. It may be given

by the mouth in one per cent. in the dose of twenty to thirty drops three times a day, or in pill form with a little extract of cinchona, as in the following pill:

- ℞ Extract of sparteine, 8 grains;  
 Extract of cinchona, 40 grains.

Make into twenty pills and use two to four a day.

Preparations of kola and coca are also useful in some of these cases. Where there has been acute intoxication, with secondary fatty heart, sudden cardiac collapse may have to be combated by inhalations of oxygen, injections of ether, caffeine, and of camphorated oil. The use of arsenic in many cases of fatty heart also produces very good results. In all patients with fatty heart the administration of chloroform should be resorted to with the greatest possible caution, and if possible avoided.

#### THE TREATMENT OF DYSPEPSIA.

In *Revue de Thérapeutique* of January 15, 1898, we are told that ROBIN recommends the following prescription in those cases associated with pain and pyrosis:

- ℞ Hydrated magnesia, 20 grains;  
 Subnitrate of bismuth, 6 grains;  
 Prepared chalk, 8 grains;  
 Bicarbonate of sodium, 15 grains.

These parts are made into one powder and twenty similar powders are given to the patient. One of these is taken three hours after meals. Should the painful symptoms be excessively severe one-sixtieth of a grain of hydrochlorate of morphine or one-sixth of a grain of powdered opium may be placed in each cachet. For the arrest of acetic fermentation absolute avoidance of alcoholic drinks must be insisted upon, and where lactic fermentation is marked the quantity of fruit eaten should be limited. Such cases may be benefited by the administration of fluoride of ammonium 15 grains, distilled water 10 ounces, and one or two teaspoonfuls of this solution given three times a day when the discomfort is felt. Where butyric acid fermentation is present, which is a more rare condition, Robin uses the double iodide of bismuth and cinchonidin under the name of erythrol, as follows:

- ℞ Erythrol, 1-6 to 1 grain;  
 Hydrate of magnesia, 2 to 4 grains.

To be placed in a cachet and taken after meals.

In many instances two small doses of arsenic or bromide of potassium or Fowler's or Pearson's solution may be given with advantage. In those cases where the dyspepsia

depends upon hepatic congestion and cirrhosis, hydrotherapeutic measures may be resorted to and mild alkaline waters, such as those of Vichy or Carlsbad, may be taken. In other instances the waters of Homburg are advantageous. In those cases where there is cardiac disturbance along with the dyspepsia, the use of tobacco must be stopped, alcohol used in moderation, and tea and coffee taken only in small quantities. The evening meal should consist entirely of vegetable material and bread should be forbidden. In the way of medication it will be useful to apply a certain amount of friction over the precordial region, and it may be necessary where there is cardiac pain to apply the following ointment to the precordium:

- ℞ Veratrin, 2 grains;  
Extract of opium, 12 grains;  
Essence of turpentine, 30 minims;  
Essence of peppermint, 12 drops;  
Benzoated lard, 1 ounce.

A small part of this is to be rubbed into the precordium once or twice a day. In other instances a capsule of ether will exercise a favorable influence in bringing up wind. Should there be marked dyspnea along with cardiac disease, good results often follow the inhalation of oxygen. The gas should be slowly taken to the extent of five to ten quarts.

Should syncopal attacks come on, inhalations of nitrite of amyl are useful and caffeine may be administered at the same time. For allaying nervousness, valerianate of ammonium may be given or the following prescription may be used:

- ℞ Arsenite of potassium, 1½ drachms;  
Cherry laurel water, 2½ drachms;  
Ether, 1 ounce;  
Essence of valerian, 4 ounces.

S.: A dessertspoonful to a tablespoonful every two hours until the symptoms disappear.

Should the symptoms persist in spite of treatment, it will be necessary for the patient to leave his business and go to a health resort for the improvement of his general condition.

#### A PRESCRIPTION FOR TENDERNESS OF THE GUMS.

- ℞ Hydrochlorate of cocaine, 2 grains;  
Chloroform, 15 minims;  
Glycerin, 6 drachms;  
Essence of roses, 6 drops.

Apply a small quantity to the painful portion of the gum.

—*Journal de Médecine de Paris*, Jan. 23, 1898.

#### TREATMENT OF CATARRH OF THE BLADDER.

In catarrh of the bladder with pain in the posterior part of the urethra and inflammation of the prostate or epididymis, we are told by the *Journal de Médecine de Paris* of January 23, 1898, that the following prescription may be used with advantage:

- ℞ Hydrochlorate of morphine, 4 grains;  
Sulphate of atropine, 1 grain;  
Distilled water, 7 ounces.

Inject into the rectum seventy-five minims of this solution. Its good effects will be noticed in ten or fifteen minutes. If there is much fever Scharff recommends the injection into the rectum three times a day of seventy-five minims of the following solution:

- ℞ Hydrochlorate of cocaine, 15 grains;  
Antipyrin,  
Salicylate of sodium, of each 160 grains;  
Distilled water, 3¼ ounces.

#### THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM BY INTRAVENOUS INJECTIONS OF CORROSIVE SUBLIMATE.

In the *Centralblatt für die Gesamte Therapie* for January, 1898, SINGER speaks of this treatment. After admitting that the various preparations of the salicylates represent to some extent a true specific for rheumatism, and commenting upon the fact that the disease probably depends upon microbic infection, he suggests that it might be well to introduce into the blood current some antiseptic substance directly without having this substance absorbed by the intestine or skin. As the salicylates do not lend themselves readily to intravenous injections Singer has employed sublimate injections. He tried this treatment upon eleven patients in the general hospital in Vienna suffering from acute articular rheumatism. The injections were made into a vein at the elbow, constriction of the arm being made so as to produce engorgement of these veins. The injection was made after the part had been thoroughly washed and disinfected by means of a Pravaz syringe (which holds from twenty to thirty minims). The following prescription was employed:

- ℞ Corrosive sublimate,  
Chloride of sodium, of each 2 grains;  
Distilled water, 160 minims.

The needle having been inserted into the vein towards the trunk the bandage upon the upper part of the arm was removed, and



the fluid was injected very slowly indeed into the vessel; afterwards the puncture was closed by iodoform gauze. In no case did the author observe thrombosis in the vein after the injection, and he practised the method upon the two arms alternately, using from six to eight injections. The patients were not troubled with any evidences of stomatitis.

Singer asserts a remarkable diminution in the articular pains takes place, this being rapid, constant, and in proportion to the application of the remedy. Usually within half an hour of the application the effect is manifest. The febrile movement is also moderated. Four out of the eleven cases treated had cardiac trouble; out of the seven other cases three presented cardiac complications during the course of the treatment.

Singer believes that the contraindications to this treatment are general debility, the existence of renal disease, and idiosyncrasy. Symptoms of mercurialism can be controlled if the minute that they appear the treatment be stopped.

#### TREATMENT OF DYSMENORRHEA.

The following formula is given in *Les Nouveaux Remèdes* of January 24, 1898:

- ℞ Tincture of hydrastis canadensis, ¼ ounce;  
Viburnum prunifolium, ¼ ounce.

Ten drops every two hours.

#### A PRESCRIPTION FOR VOMITING OF PREGNANCY.

- ℞ Hydrochlorate of hydrastinine, 15 grains;  
Distilled water, 3 drachms.  
Fifteen to 30 minims hypodermically.

—*Les Nouveaux Remèdes*, Jan. 24, 1898.

#### TREATMENT OF GONORRHEA.

In the *Revue Pratique Obstétrique et de Gynécologie* for January, 1898, the following formulæ are given for the treatment of this disease; the statement first being made that solutions of formalin in the proportion of 1:10,000 should be used for injection purposes four times a day. For the prevention of erections and nocturnal emissions Finger recommends:

- ℞ Camphor, 2 grains;  
Mucilage of acacia, 3 ounces;

Two teaspoonfuls every two or three hours.

Or,

- ℞ Pure lupulin, 15 grains;  
White sugar, 30 grains.

Divide into ten powders and take three of these a day.

Or,

- ℞ Lupulin, 15 grains;  
Hydrochlorate of morphine, 1 grain;  
White sugar, 30 grains.

Make into ten powders and take three a day

Or again,

- ℞ Lupulin, 15 grains;  
Camphor, 2 grains;  
Extract of hops, a sufficient quantity to make ten pills, of which six should be taken a day.

Or,

- ℞ Powdered digitalis leaves, 4 grains;  
Lupulin, 15 grains.

Make into ten powders. Take one three times a day.

Or,

- ℞ Bromide of sodium, 2 to 4 drachms;  
Camphor and lupulin, of each 8 grains.

Make into ten powders and take one of these night and morning.

Or,

- ℞ Monobromate of camphor, ¼ drachm.

Make into six cachets and give three or four cachets a day.

In some cases antipyrin is a useful analgesic when prescribed in the dose of ten to twenty grains, and the same may be said of the citrate of cornutine in the daily dose of one-tenth of a grain.

#### TREATMENT OF COUGH OF PHTHISIS.

The following prescription is given by the *Journal de Médecine de Paris* of January 23, 1898:

- ℞ Fluid extract of hydrastis canadensis,  
Fluid extract of ergot, of each 6 drachms.

Four or five times a day after food, administer 30 to 40 drops of this solution in a little water.

It is asserted that hydrastis canadensis promptly checks the cough, and that the muco-purulent expectoration is markedly diminished.

#### THE USE OF RECTAL INJECTIONS OF SALT WATER IN PLACE OF INJECTIONS OF ARTIFICIAL SERUM INTO THE VEINS.

The *Journal de Médecine de Paris* tells us that PAUCHET has used salt water in the proportion of 8 per 1000 in hemorrhages after surgical operations and in parturition by means of rectal injections, with very good results.

It is well known, of course, that these injections can be given intravenously in case of great hemorrhage accompanied by shock, and that they frequently do a great deal of good. So, too, subcutaneous injections of

artificial serum are often exceedingly valuable. Pauchet claims, however, that the use of saline solution by the bowel is followed by good results and has none of the disadvantages of either intravenous or hypodermic injection. The patient receives a rectal injection of a pint of hot salt solution, and this may be repeated if the collapse is great or the hemorrhage has been great, two or three times in the course of a day. He has known of cases where as much as three quarts have been absorbed in the course of twenty-four hours. Should the bowel become intolerant then other methods have to be resorted to, but Pauchet asserts that the pulse improves, the urine becomes abundant, the mouth becomes moist, and that this treatment also seems to diminish the vomiting following the use of an anesthetic. A similar recommendation to that of Pauchet is made by Fieux in regard to post-partum hemorrhage, he also claiming that such injections are an exceedingly valuable method of treatment.

#### HYPODERMIC INJECTIONS.

The following formulæ are given by *Les Nouveaux Remèdes* of January 24, 1898, for the use of hydrobromate of quinine:

℞ Neutral hydrobromate of quinine, 15 grains;  
Distilled water, 2¼ drachms.

To be given in the dose of from 15 to 60 minims.

Or,

℞ Basic hydrobromate of quinine, 15 grains;  
Antipyrin, 30 grains;  
Distilled water, 2¼ grammes.

Fifteen to 45 minims at a dose.

For the treatment of uremia Bricon and Poulet suggest:

℞ Hydrochlorate of pilocarpine, 2 grains;  
Distilled water, 2¼ grammes.

Ten to 30 minims to be given hypodermically in case of uremia.

[We believe that this should be resorted to with caution.—ED.]

Crédé is credited with the use of a similar prescription for puerperal eclampsia. [This is certainly contraindicated unless the circulation is exceedingly strong.—ED.]

#### THE TREATMENT OF HEMOPHILIA BY THYROID GLAND.

DELAKE has reported the case of a woman who because of hemophilia suffered from excessive anemia. The facies were exsanguinated in appearance, the mucous membranes absolutely colorless. The gums bled

easily on touch, and the extremities and body were covered with a purpuric rash. Menstruation was profuse and lasted from twelve to fourteen days. She was treated by the various hemostatics and by repeated injections of ergotin without much result. Seeing that Vigier had employed capsules of thyroid gland in the treatment of metrorrhagia, Delace concluded to try this remedy, and three capsules of thyroid gland were given each day, with the result that the loss of blood was immediately arrested. The patient gained in weight, the purpuric spots disappeared, the gums became firm, and some color began to appear in the face. Cardiac palpitation was decreased. At no time was the dose greater than three capsules a day.—*Journal de Médecine de Paris*, Jan. 23, 1898.

#### THE USE OF METHYLENE BLUE IN THE TREATMENT OF DIABETES MELLITUS.

Our attention is called to this matter by *La Médecine Moderne* of January 22, 1898. A man of fifty-three years, suffering from headache and general malaise and other evidences of diabetes mellitus, including glycosuria and albuminuria, received five to eight grains of methylene blue, and under these circumstances the albumen materially diminished and the sugar markedly decreased in quantity. The quantity of urine was also decreased. In a second case the results were equally satisfactory. In this instance four pills of methylene blue to the amount of two grains each were administered each day with marked benefit. One advantage of this treatment is that it tends to relieve any neuralgic pains from which the patient may be suffering.

#### THE TREATMENT OF POISONING BY MUSHROOMS.

*La Presse Médicale* of January 12, 1898, contains the following recommendations in regard to this treatment, it having been carried out with success a number of times.

First, half an ounce of castor oil in black coffee was given, and after this a warm rectal injection containing one pint of water, some senna, and six drachms of sulphate of sodium.

After the bowels had been thoroughly moved, a second warm injection containing one and a half pints of warm water and twenty drops of belladonna was given, and for distinct antidotal purposes full doses of

atropine in boiled distilled water were administered hypodermically.

Venesection was also resorted to to remove poisoned blood from the body and to allay arterial tension, and after this had been done intravenous injection of a pint of artificial serum was performed, the temperature of the fluid being that of the body. Gentle stimulation was resorted to and cups of hot tea and coffee and hot punch were administered.

#### THE TREATMENT OF ABORTION.

In the *Medical News* of November 6, 1898, H. J. GARRIGUES writes upon this old topic, which always possesses interest to the general practitioner. In the course of his paper he points out that the treatment may be prophylactic or curative. The former is especially called for in cases of habitual abortion, in which a history of syphilis is so frequently elicited; and by instituting specific treatment of the husband, the wife, or both, it may be possible for pregnancy to be completed. It may be necessary for the patient to change her occupation or location of residence, especially if the latter should be in a malarious district. Sometimes a uterine displacement exists which may be remedied before pregnancy occurs. If no such indications are found, the writer has sometimes succeeded in preventing abortion by having the patient remain in bed during the week corresponding to what would be a menstrual period if pregnancy had not occurred. Confinement to the bed should continue from two days before menstruation would be due under non-pregnant circumstances to five days after. At the same time a teaspoonful of fluid extract of *viburnum prunifolium* should be administered three times a day. During the remaining three weeks moderate exercise in the open air is indicated, and at the same time iron, quinine, red bone-marrow, arsenic and phosphorus may be given with benefit. In the author's opinion this is a better plan than forced and complete rest during the whole of pregnancy, which treatment is very weakening and may assist in the causation of abortion or make the patient less fit for the ordeal of childbirth. Coition, dancing, horse-back riding, bicycling, gymnastics, and all sorts of sports or fatiguing work must be absolutely forbidden.

If abortion threatens, as indicated by loss of blood from the uterus, it becomes necessary to decide if further prophylactic measures are advisable. Under these circumstances it is

often possible to prevent abortion by means of complete rest and the administration of *viburnum prunifolium*, opium suppositories, a saline, and the application of an ice-bag to the hypogastrium. If hemorrhage is considerable or has continued long, if the cervical canal is open, if the ovum is felt projecting into the vagina, abortion is inevitable, and then the sooner the uterus is emptied the better it will be for the patient.

The old treatment, consisting in vaginal injections of ice-water, tamponade, and removal of the ovum, exposes the patient to great danger, and at best leads to a tedious recovery. Garrigues rarely uses a tampon. The indications for its use are only when there is great weakness, necessitating a better general condition of the patient before having recourse to operative interference, and also when, on account of unfavorable surroundings, it is wise to remove the patient to a hospital.

In many (even new) books the use of tents for producing dilatation of the cervical canal is recommended. The writer is opposed to the employment of any kind of tent except that, if it is deemed necessary for other reasons to tampon, he uses iodoform gauze in the upper part of the vagina, and introduces a portion of the gauze into the cervical canal. If immediate dilatation is necessary it is, in his opinion, much better to use either the expanding or coniform dilators. If a tampon is used, only the portion which is placed in the upper part of the vagina should be composed of iodoform gauze. The portion of the tampon in the lower part of the vagina should be made of pledgets of absorbent cotton wrung out of a one-per-cent. creolin emulsion, and should be inserted with the aid of a Sims speculum, and so tightly packed that it effectively prevents any loss of blood.

In most cases it is the author's practise to dilate the cervical canal instrumentally. For abortion occurring during the first three months of pregnancy, all that is required for this purpose is a set of conical, hard-rubber dilators, or a dilator embodying the principle of a glove-stretcher. During the fourth and fifth months a higher degree of dilatation is required, and for this purpose he employs a set of olive-shaped hard-rubber dilators. The set consists of ten olives, ranging in circumference from 33 to 68 millimeters. At a later date of pregnancy Hank's large dilators, ranging from 73 to 137 millimeters, are very useful. When the necessary degree of dilatation has been effected, the uterine cav-

ity may be emptied. Much less violence is required in introducing dilators than in forcing a finger through a closed os, as has been recommended.

For the purpose of emptying the uterus, Thomas' small dull wire curette is useless, and may lead the operator into an erroneous belief that the cavity is empty. On the other hand, his large dull wire curette, with an opening admitting the tip of a forefinger, is an admirable instrument for the purpose of both loosening the ovum from the walls of the uterus and removing it by seizing it between the instrument and the index-finger, as well as for scraping off the decidua vera. Formidable as the instrument appears, the writer has used it many times with the greatest satisfaction. Before the end of the second month of pregnancy it is too bulky, and in such cases he employs the old Recamier curette, which also is dull, but much smaller and better adapted for this period. At a very early stage, say at the end of the first month, it is even necessary to use Simon's sharp spoon or Sims' curette. For the removal of the fetus, a blunt forceps with heart-shaped or oval rings is required, and the same instrument may, in rare cases, be necessary to assist in removing the placenta; but in nearly all cases he prefers the combined use of the finger and the large dull wire curette. By using moderate force one can safely scrape as long as anything comes away. When the uterus has been emptied and is small, it is only necessary to pack the vagina as described above. If it is larger, say corresponding to three months' gestation, it is his practise to pack the uterine cavity with iodoform gauze before tamponing the vagina. The tampon is removed the following day, and after that a vaginal douche of one-per-cent. carbolyzed water is given twice daily. The patient should remain in bed at least one week.

Immediately before and after curettage the uterine cavity should be flushed with two pints of a one-per-cent. creolin emulsion, which is both antiseptic and hemostatic. For this purpose the author uses a single current metal tube. There is no advantage in combining the curette and irrigation tube in one instrument. He prefers, on the contrary, to distinctly see what is scraped away. To use the finger as a curette is in most cases unsatisfactory, even when one hand is used for pressing the fundus down. The finger is often arrested at the internal os or does not reach the uppermost part of the cavity, and

at all events it can only be used to separate the ovum from the uterus, and cannot remove the decidua vera.

When the uterus is empty and the tampon has been applied, ergot may be administered to the best advantage, and it should be continued in doses of one teaspoonful three times daily until an ounce has been taken.

Should pain be an element, which is exceptional after the uterus is empty, there is no objection to the administration of an opiate. In most cases it is certainly advisable to employ anesthesia. It is hardly necessary to say that the rules of clean midwifery should be carefully observed.

Should pregnancy be terminated after the fifth month, and the placenta not be expelled, either by the uterine contractions or by Cr  d  's method, it is better to tampon the uterus and vagina as described before, and await further developments. If the placenta does not come away within twenty-four hours the dressing should be renewed and left in place a day longer, and then if the placenta yet remains within the uterus its mechanical removal is positively indicated. The intra-uterine use of steam has of late been recommended, but it has been found in cases in which hysterectomy has subsequently been performed that it requires four weeks before the cauterized tissue is regenerated. Experience in other conditions in which Garrigues has used steam after curettage has shown that its use is often followed by a protracted purulent discharge. Consequently, its employment does not seem advisable.

That the treatment advocated in this paper may be used even when the os is closed follows from its applicability to cases of induced abortion. The writer has had but four such cases, which were described in a paper read before the American Gynecological Society. The operation was performed at the end of the first, the second, and the fourth months, and at the end of the seventh week of pregnancy. All the patients made good recoveries within a week, and at no time were seriously ill.

Our resources are limited for the treatment of septic cases, and the prognosis should be very guarded. If the fetus, ovum, or placenta is retained, or should there be hemorrhage, the cervix must be dilated and the uterus curetted and washed out. In doubtful cases it is often better to refrain from curetting, for by this operation the protective wall which Nature throws out may be destroyed, and infectious germs given a ready

means of penetrating to the deeper tissues. Under all circumstances great attention must be paid to the general treatment in septic cases. The patient should be given as much whiskey or brandy as she can tolerate—twelve ounces or more during the twenty-four hours. Salophen given in five-grain doses every three hours has seemed beneficial. It is needless to say that the bowels should be kept open.

In localized septic cases a treatment similar to that recommended for simple abortion is indicated. In septicemia whether or not local treatment is necessary will depend upon the obtaining circumstances.

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*THE TREATMENT OF SCIATICA BY  
LOCAL APPLICATIONS.*

This somewhat unusual method of treating sciatica is recommended in a Paris thesis. The treatment consists in applying by means of a compress half an ounce of pure hydrochloric acid over the course of the painful nerve, and after this a bandage is applied enveloping the part. An ointment is applied to the burn. The method is somewhat painful, and in a short time white blisters filled with serum appear, but these in turn disappear in the course of a few days. GENNATAS asserts that after the first application the patient is relieved, and that after a few days another application should be made to the spot near-by the first. In the cases Gennatas treated a cure was produced after the applications during fifteen to twenty-five days.—*Journal de Médecine de Paris*, Dec. 19, 1897.

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*THE TREATMENT OF TUBERCULOSIS BY  
CINNAMIC ACID.*

HEUSSER and LANDEW have treated a large number of tuberculous patients by this means. The drug is to be given hypodermically and intramuscularly. At the beginning two minims of cinnamic acid is injected, and this is gradually increased until one gramme is given. The injection is followed by burning pain, which disappears, however, quite rapidly. The patient feels fatigued, there is congestion of the head, and sometimes an attack of vertigo. After the treatment has been continued two to four weeks the patient gains in weight, his appetite is increased, cough is diminished, and the pulmonary sounds improve. The quantity of yellow elastic fiber and the bacilli in the sputum also decrease.

As a secondary result of the treatment

tumefaction of the cellular tissue is sometimes noted. This method of treatment they tell us requires great constancy and patience on the part of the doctor and patient, and should, having once been begun, be persisted in until sufficient time has elapsed to prove it of no value. They quote Landell, who reached the following conclusions:

Cinnamic acid is a remedy which exercises considerable influence upon the progress of tuberculosis.

As the remedy is not entirely innocuous it must be used with some caution.

There is no doubt that injections of cinnamic acid distinctly ameliorate and perhaps cure pulmonary tuberculosis.—*Journal de Médecine de Paris*, Dec. 5, 1897.

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*THE TREATMENT OF GRIPPE.*

In the *Revue de Thérapeutique Médico-Chirurgicale* of January 15, 1898, the following treatment for this disease is recommended:

Absolute and prolonged rest in bed until after all fever has disappeared and the principal symptoms have been ameliorated, notably pulmonary manifestations; an exclusive liquid diet, consisting of milk, coffee, mild stimulants, and hot drinks. The coffee is useful as a diuretic and to antagonize nervous depression. Care should be taken to maintain diuresis by this means. It is well to resort to antiseptics of the respiratory passages by gargling with some mild antiseptic gargle, and by spraying out the nose with a spray of liquid albolene with menthol in the proportion of three to six grains to the ounce. It is well to begin the treatment by a mild calomel purge. Where the symptoms are chiefly fever, great nervous depression, sore throat, hoarseness, and other manifestations of respiratory difficulty, it is believed that quinine is the specific remedy, the hydrochlorate being preferred and being given in the dose of ten to fifteen grains. Such a dose may be given three times in twenty-four hours, in cachets preferably. Should the stomach be intolerant the hydrochlorate of quinine may be given by the rectum, dissolved in the proper quantity of hot water, or suppositories of hydrochlorate of quinine may be used. Antipyrin seems to be of value in combating fever and quieting pain, but it often is a dangerous remedy in old persons. If the temperature is very high, warm baths continued for fifteen to twenty minutes are advisable. To combat the headache phenacetine com-

bined with antipyrin may be used. To overcome the evidences of congestion in the pulmonary mucous membranes, from ten to fifteen grains of chloride of ammonium and five to ten grains of Dover's powder may be given in the course of the day. To overcome cough and produce sleep, opium, morphine or codeine may be used.

[We would prefer the bromides with or without small doses of chloral in preference to opium in such cases.—Ed.]

#### THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM.

The *Revue de Thérapeutique* of January 12, 1898, makes the following recommendations: For controlling the sweats give  $\frac{1}{100}$  of a grain of neutral sulphate of atropine once or twice a day, or one-third of a grain of tellurate of sodium once or twice a day. For the insomnia give injections of morphine. For the tendency to excitement or delirium use chloral and bromide of potassium. During convalescence compresses are to be applied to the articulations, for the purpose of causing the absorption of fluid, and massage, vapor baths, and the iodide of iron in syrup after each repast are to be employed. If possible a visit to hot springs is to be urged.

The treatment of the principal complications, as pericarditis, is counter-irritation or scarification over the precordium; if a failing heart is present give doses of digitalis, subcutaneous injections of ether, caffeine, sparteine, camphorated oil or alcohol or Hoffmann's anodyne. Should pericardial effusion form, paracentesis should be performed. For the treatment of myocardial trouble similar medicines may be given. The iodide of potassium in small doses is sometimes useful. Pulmonary edema is to be met by the use of counter-irritation and digitalis; pleurisy by milk diet, diuretic drinks, and salicylate of sodium. Cerebral rheumatism is to be treated by suspending the salicylate of sodium, by giving a cold douche to the head, the patient being in a hot bath. Chorea is to be combated by the use of antipyrin or arsenate of sodium.

#### THE THERAPEUTICS OF HOT DRINKS.

Chronic indigestion is sure, sooner or later, to be followed by disturbance of the motor apparatus of the digestive tract, usually affecting more particularly the stomach, which reacts less readily to stimulation. There results a condition of impaired secretion, plus

a greater or less degree of muscular atony, which must be combated at an early stage if we wish to avoid an incurable degree of gastric dilatation. Among the remedies at our disposal hot drinks have, of late years, attained considerable vogue. The ingestion of tepid fluids exerts a marked sedative action on the gastric mucous membrane and often relieves the painful sensations following meals in chronic dyspepsia. Less recognized, perhaps, is the influence of hot drinks on the motor functions of the stomach. In the ordinary course of events nothing remains in the stomach six hours after a meal, and the presence of alimentary debris after that period indicates the presence of some degree of muscular paresis. This condition of things may be greatly benefited by the use of hot water with or immediately after meals; but in chronic cases, permanent benefit can only be obtained by perseverance, the treatment being methodically carried out for some months. As might be anticipated, the hot water treatment does not ameliorate the secretory defects in the same degree as the muscular weakness, but by maintaining the stomach in a hygienic condition we may, at any rate, hope to check further degradation of the peptic glands. The temperature of hot drinks should be from 105° to 110° F., and their employment is especially indicated in cases of hyperacidity associated or not with some degree of gastric dilatation.—*Medical Press and Circular*, Dec. 29, 1897.

#### THE DANGERS AND USES OF ERYTHROL TETRANITRATE.

The *British Medical Journal* of January 1, 1898, makes the following editorial statement, which is of interest:

"We have received a detailed account of the circumstances attending a recent fatal explosion of erythrol tetranitrate. It appears that a qualified chemist was engaged in stirring together in a mortar a mixture of erythrol tetranitrate and lactose, presumably for the purpose of making tabloids. The quantity of the active drug served out to him was four ounces, and there is reason to believe that the dangerous nature of the combination was fully explained to him at the time by the chief of the department. The explosion was violent, but its effects were, fortunately, local. The jury returned a verdict of 'Accidental Death,' and passed a resolution expressing their appreciation of the facilities placed at their disposal by the firm for in-

vestigating the circumstances of the case. For much of our knowledge of the physiological action of erythrol tetranitrate and its congener, mannitol hexanitrate, we are indebted to Professor Bradbury, of Cambridge, who in the Bradshaw Lecture, delivered before the Royal College of Physicians of London in 1895, gave some account of the pharmacology of these substances, based chiefly on a series of experiments made by Mr. Marshall, M.B., in Professor Schmiedeburg's laboratory at Strasburg. Erythrol tetranitrate is solid and crystalline, and melts at a temperature of  $61^{\circ}\text{C}$ . ( $142^{\circ}\text{F}$ ). When pure it is colorless, and if kept in a dark and moderately cool place is fairly stable. If exposed to warmth, and especially sunlight, it rapidly undergoes decomposition, turning yellow and giving off nitrous fumes. Its solubility in water is slight, but it dissolves readily in alcohol and in ether. It is a vasodilator and belongs to the group of which glycerol trinitrate, known familiarly as nitroglycerin, may be regarded as the typical representative. Blood-pressure experiments show that the nitrates of erythrol and mannitol have a less marked but more prolonged action than those of glycerol and glycol. On theoretical grounds it might be supposed that the new remedies would be useful in the treatment of cardiac pain, Bright's disease, migraine, and Raynaud's disease, but, as far as we have been able to learn, there has been very little demand for them. A well known pharmacist stated that he had never dispensed a prescription containing erythrol tetranitrate, and the dispenser at a large general hospital admitted that the name was not familiar to him; yet Professor Bradbury in a letter states that he is able to speak very highly of its therapeutic properties in warding off attacks of angina pectoris. Dr. Garraway mentions the case of a gentleman who has derived immense relief from its use, and won long periods of complete immunity. Dr. Bradbury, in the lecture to which reference has been made, stated that the dose of the solid organic nitrates was a grain, but that more might be given if thought necessary. He suggested that they should be taken in the form of pills or tablets, or in alcoholic solution. There is now, unfortunately, very little doubt that these new organic nitrates cannot be handled with impunity in any form in which trituration is necessary. They, in common with many other nitrates, were known to be explosive, but that they would develop such activity by being merely gently stirred

with lactose could not have been foreseen, although Professor Bradbury in his letter expresses the opinion that mixture with some readily oxidizable substance might increase the liability to explosion."

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#### THE VALUE OF DIPHTHERIA ANTI-TOXIN.

At the close of an interesting article upon diphtheria by LOUIS MARTIN in *La Médecine Moderne* of February 2, 1898, the following statistics are given:

Moizard and Perregaux record 231 cases, with a mortality of 11.7 per cent.; Sevestre and Meslay 150 cases, with a mortality of 10 per cent.; Le Breton and Magdeleine 258 cases, with a mortality of 12 per cent.; Sevestre had also collected, in 1895, 1140 cases with a mortality of 18.35 per cent., and in 1896, 853 cases with a mortality of 16.24 per cent. In 1897 Barbier recorded 260 cases with a mortality of 6.28 per cent. It is evident, therefore, that abroad as well as in this country antidiphtheritic serum gives very advantageous results.

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#### LUMBAR PUNCTURE.

V. RANKE (*Münchener Medicinische Wochenschrift*, Sept. 21, 1897) discusses the value of lumbar puncture in tuberculous meningitis. He has employed it in twenty-five cases, including nineteen of this form of meningitis. The author observes that in no case as yet has the puncture produced a cure. In Freyham's atypical case the recovery could not be shown to be due to the puncture. A fatal result occurred in all the author's nineteen cases of tuberculous meningitis. V. Ranke gives instances in which a temporary improvement followed upon the puncture, but in most cases there was no change in the condition of the patient. It would appear that such improvement is only seen in the early stages of the disease, when the pressure has not lasted long. The author has never seen any improvement in the optic neuritis. It must be remembered that the symptoms of tuberculous meningitis are liable to great variation. As a rule the diagnosis of this disease is easy, but in some few cases it may be impossible, and it is in these cases that a positive result obtained by spinal puncture may be of diagnostic value. As with many other observers, the author found the number of tubercle bacilli present in the fluid to be small in numbers. He concludes that lum-

bar puncture can only be of very limited diagnostic value in tuberculous meningitis. The differential diagnosis between it and the meningitis consecutive to ear disease has not always been made easy by spinal puncture. In tuberculous meningitis the fluid drawn off is clear, usually colorless, but it may be very slightly green or yellow. The specific gravity was about 1010, and the amount of albumen 1 to 1.5 pro mille. Traces of sugar were present. The amount of fluid drawn off was usually from 20 cubic centimeters to 30 cubic centimeters, and the pressure high, amounting to 160 millimeters to 300 millimeters water. In the author's cases no harm of any kind was produced by the puncture.—*British Medical Journal*, Jan. 1, 1898.

#### THE RELIEF OF OCULAR PAIN.

To resort to morphine for the relief of suffering in affections of the eye which are characterized by severe pain before the simpler and oftentimes more efficacious remedies are tried is an unwise procedure. Morphine should be the last resort, both for the reason that to subdue severe pain in a single organ more of the drug is required than is efficient in cases of more general character, and the fact that frequently its administration does not relieve the patient until its unpleasant effects overbalance its benefits and one form of suffering is substituted for another.

The simplest is often the best, and in hot water we possess an agent peculiarly potent. In the pain of iritis, traumatism of the cornea and ulcerative keratitis no other one agent will give so uniformly good results, yet to gain good results one must know the best method of application. Hot fomentations to the eye must not be poultices—save in a few conditions they are absolutely contraindicated—but should be used in one of two ways. A cotton sponge may be dipped in water that is as hot as can possibly be borne—and that is usually hotter than the patient thinks he can bear—quickly pressed and applied to the organ. It should not be allowed to remain more than half a minute, when the procedure should be repeated and continued for five or ten minutes. After an interval which is usually of comparative ease this may be repeated.

Another method is to fill a fountain syringe with water at a temperature of 115° to 130° F., and attaching to the conducting tube the glass of an ordinary medicine dropper, allow the water to flow from a height of two feet

directly upon the eyeball, collecting it in a cup pressed tightly against the lower lid. Smearing the lids with vaselin will prevent them from suffering by contact with the hot water, and with the patient in a recumbent position and with the face turned toward the afflicted side this procedure is easy of application.

Poultices, save in abscess of the lid, suppurating chalazion and hordeolum, should not be used.

Sometimes ice-cold compresses will relieve the pain quicker than hot applications, and there is no criterion but actual trial by which to decide which is the better remedy in an individual case. Ice compresses should be of one thickness of thin linen cloth torn into small squares and taken directly from a lump of ice and applied to the eye. The heat abstracted will change the cold to moist heat in a very few moments, and they should be changed even more frequently than when hot applications are used.

The abstraction of blood by means of leeches, or better the artificial leech, will be found to relieve the pain of acute inflammatory conditions with distended vessels, and may be repeated as often as required; but the relief obtained is transitory, and experience proves that the effect of repeated cuppings is apt to diminish with their frequency.

Where there is no secretion which can avert a deleterious influence by contact with the delicate structure of the eye, a pressure bandage, deftly and uniformly applied, is at times grateful, and the effect of position should not be overlooked. Pain in an eye is usually worse when the patient is in a recumbent position and when the affected eye is buried deeply in the pillows.

Pain, neuralgic in character and not associated with inflammatory conditions, is sometimes relieved by mild counter-irritation, and a mixture such as the following will frequently prove beneficial:

℞ Menthol, grs. xxx;  
Spts. rosmarin.,  
Spts. lavandul.,  
Spts. vin. gal., aa 3 j.  
Ft. lotio.

Sig.: Bathe the forehead and temples with brisk rubbing.

Of the medicines which may be dropped into the eye, the solutions of cocaine or eucaine are the most reliable. The indiscriminate use of either is, however, not to be commended, and in corneal affections the action of cocaine upon the epithelial layers



and the consequent impaired nutrition is at times absolutely injurious. Of drugs, aside from morphine we have our choice of the numerous coal-tar derivatives, which are at times very useful; but the depressant effect is quite as marked as when used for other reasons, and their contraindications should be carefully noted. Of them all, lactophenin is probably the safest and is quite as efficient as any. In ten- to fifteen-grain doses the pain of an iritis is sometimes relieved for hours, at any rate long enough to allow the patient to get needed sleep. In glaucoma secondary to a dislocated lens where all the effect of an iridectomy had been produced by the injury itself, this drug was the only one save morphine which gave relief. The pain of herpes zoster ophthalmicus, which is so persistent and severe, was also relieved in great measure by this drug in one case where morphine failed to produce any alleviation of the suffering.

In ocular pain, then, try the simpler remedies first and resort to local and internal medication only when they prove inefficient. — *The Philadelphia Polyclinic*, December, 1897.

#### SOME CLINICAL AND STATISTICAL EVIDENCE OF THE VALUE OF THE ANTITOXIN TREATMENT OF DIPHTHERIA.

Dr. E. P. MANBY reaches the following conclusions in the *Liverpool Medico-Chirurgical Review* for January, 1898:

The clinical effects of the treatment are:

1. An improvement in the general condition and aspect of the patient.
2. An improvement in the local condition:
  - (a) Diminished glandular and faucial swelling.
  - (b) Extension of membrane ceases.
  - (c) Earlier separation of membrane; this has been proved by actual records kept before and since antitoxin was used.
  - (d) Diminution, and soon complete cessation, of the foul rhinorrhea.
3. A similar improvement in laryngeal cases, evidenced by diminution in difficulty of breathing, and by actual recovery in many cases without operation, which would previously have required it. Moreover, a marked improvement in the course towards recovery of operation cases.
4. A prolongation of life in cases which terminate fatally—one and a half to three days.
5. No definite effect on pulse or temperature.

Statistical results, in the words of the Antitoxin Report:

1. A great reduction in the mortality of cases brought under treatment in the first three days of illness.
2. The lowering of the combined general mortality to a point previously not attainable.
3. The still more remarkable reduction in the mortality of the laryngeal cases.
4. The uniform improvement in the results of tracheotomy.

In fact, "a remedy of much greater value in the treatment of diphtheria than any other yet introduced."

#### THE TREATMENT OF UREMIC VOMITING.

In the *Journal des Praticiens* of December 25, 1897, HUCHARD recommends that in the treatment of vomiting due to gastric disturbance or uremia, lavage be resorted to for the purpose of removing the poison from the stomach, arresting the vomiting and permitting the administration of proper medications, amongst others stimulants if they are needed.

#### THE INUNCTION OF MERCURY IN TERTIARY SYPHILIS OF THE NOSE AND THROAT.

ST. CLAIR THOMSON, one time London correspondent of the *GAZETTE*, has contributed a very practical paper on this topic to the *Laryngoscope* for January, 1898. He thinks that syphilis of the upper air-passages is, in the majority of instances, a severe disease, and in its treatment we must, in the words of Tissier, "*frapper vite et fort*." The author is accustomed to give iodide of potassium in all cases, and in the following combination:

℞ Potassii iodidi, grs. v;  
Spts. ammon. aromat., ℥ xv;  
Tinct. gentian co., q. s. ad f 3 ij.  
Ft. dosis.

This is given, well diluted, three times a day, and, if taken before meals, the writer finds it agrees well and appears to be more effectual than even larger doses given after food. If for any reason inunctions of mercury are not ordered, or even in addition to the inunctions in severe cases, the writer adds to the above a drachm of liquor hydrargyri perchloridi.

While in many cases this rapidly relieves the symptoms, as remarked, it is on the administration of mercury by the skin that most reliance is to be placed. The only serious

objection to this method of administration is the possible state of the patient's gums. Teeth which are carious, or coated with tartar, need not offer any difficulty, for they can be quickly scaled and filled; but if the gums are chronically inflamed, the inunction must be given with the greatest circumspection, for it is in this form that mercury is most apt to cause severe stomatitis. If the gums are ordinarily healthy and the teeth in good condition, the writer has not seen the least trouble arise in the mouth from thirty, or even forty, consecutive rubbings of a drachm of blue ointment nightly. The prescription is ordered as follows: Six drachms of unguentum hydrargyri are ordered to be dispensed in six separate packets of oiled paper. The patient takes a warm bath in the evening, and, if not accustomed to free ablutions, is recommended to scrub himself liberally with soap. Then, sitting in front of a fire, if it is winter-time, one of the packets is opened and the drachm of ointment is patted on a part of the body in about twelve or more little dabs. With the palm of his hand the patient then steadily—not roughly—rubs the ointment until it has practically all disappeared, as it will do, leaving only a dirty stain. He is advised to take time over this, devoting at least a quarter of an hour to it. He then puts on an old suit of flannel pajamas and goes to bed. If he belongs to the class of life which can command the time and opportunity for daily warm baths, he is recommended to take one in the morning, afterwards dusting with finely powdered boracic acid the region anointed on the previous evening. On the second evening another region is selected and another drachm of ointment is used. As a routine the patient is directed to select a different region for each of the six packets; these regions are: the inside of the two thighs, the sides of the body from the ribs to the iliac crests, and the flexor surfaces of the arms. If the patient belongs to the working class, he takes a weekly warm bath on the seventh evening, and on that night no inunction. There is no therapeutic reason whatever in omitting the inunction once a week; but it gives the patient a fixed order of procedure, and an even number of regions for the inunctions. Also by ordering only enough ointment for six applications, we can insure a freshly prepared supply once a week. This is an important point in helping to avoid irritation of the skin. Berkeley Hill recommended that the ointment be made up with lanolin, and that a drachm of olive

oil be added to each ounce of it. The effects must, at first, be constantly supervised.

The writer has never found any necessity to interfere with the patient's diet as long as it is wholesome and nourishing. He should avoid drinking spirits, and be as abstemious as possible in the consumption of alcohol generally; and if the mouth is affected, he should give up smoking. The great necessity of attention to the mouth and teeth is strongly impressed upon him; hence he is urgently recommended to brush his teeth thoroughly, at least morning and evening, and to rinse his mouth after every meal with a chlorate of potash or some antiseptic mouth-wash. The following is the gargle which is usually prescribed at Aix-la-Chapelle:

℞ Liq. alum. acet., 100.00;  
Aq. floris aurantii, 300.00;  
Aq. destill., 800.00.

Although patients are generally recommended to avoid fatigue and undue exposure, especially after perspiration, as a rule they continue their ordinary avocations. The writer has had military officers who continued the inunction when camping out under canvas, and who performed their duties and declared that they felt better than they had done for months.

This brings us to one of the chief objections to this form of treatment, viz., that it is out of the question if the disease is to be kept secret. Certainly in the case of married men who have not confided in their wives, this objection is a serious one, and forms one of the reasons for preferring to have the treatment carried out at Aachen (Aix-la-Chapelle), Arkansas, or other sulphur springs. Still the author has known patients, like the officers above quoted, who succeeded in carrying out the treatment under what would have appeared the most adverse social conditions. The objection may be met to some extent by having the inunction carried out by a professional *frotteur* at some public baths. If the rubbing is not carried out with the patient's own hand, it may be well to remark that whoever undertakes the task should have the hand protected with a rubber glove, otherwise he may suffer from mercurialism.

The duration of the treatment varies, of course, with the extent and progress of the disease and the condition of the patient. Roughly speaking, twenty-five to thirty and even forty inunctions are required. The amount at each inunction will vary, according to the case, from twenty to sixty grains

(one to five grammes). With the disappearance of the symptoms the chronic intermittent treatment must be prosecuted, for it is necessary not only to treat patent syphilis, but also latent syphilis. For reasons already stated, this applies particularly in the tertiary manifestations of the nose and the throat. This chronic treatment will again vary according to the amount of previous treatment, the obstinacy of the affection, the condition of the patient, etc. As a rule, he gives no mercurial treatment for six months; at the expiration of that time the patient is advised to have some fifteen rubbings. At the end of another six months a second fifteen rubbings, and a third rubbing half a year later. If there has been no reappearance of any symptoms during these eighteen months, the patient is simply put on his guard for the future as to observing any recurrence which might arise, and advised, on their appearance, to report himself. But if from the beginning of treatment the symptoms are very obstinate, or very ready to reappear, then, between one six-months' treatment and the next, the action of mercury is kept up by the administration by the mouth of a grain of pulvis hydrargyrum cum creta in a pill, two, three or more times a day. The iodides are also prescribed as indicated.

Doubtless, the other method of introducing mercury through the unbroken skin would be equally, if not more, effectual. The writer has had no personal experience of it, but it has long been practised by Mr. Henry Lee, and has lately been advocated by Dr. Shaw-Mackenzie. The local disadvantages of hypodermic injections, and the lamentations of patients who have gone through the treatment, have prevented him from trying it. But in cases where the most rapid action is desirable—as in acute syphilitic edema of the larynx—it would, no doubt, be the method to be selected. Other writers have shown how, in such cases, a threatened tracheotomy may often be avoided.

Local treatment must not, of course, be omitted. Indeed, local treatment is of the highest importance in specific affections of this region, and in a large number of cases it would prevent the deplorable results we are too apt to see. It should not be too energetic. It consists in cleanliness and antiseptics; the local use of mercurial lotions; the judicious use of escharotics, such as the acid nitrate of mercury in the strength of 1 to 8, as recommended by Ohmann-Dumesnil; and then such surgical measures as the curette

and the knife. When the larynx is affected we are sometimes prevented from applying medicaments directly to it, owing to the tongue being painfully affected at the same time. In such cases excellent results may be obtained by a spray of perchloride of mercury (1 in 2000), or by the inhalation of the fumes of calomel from a vaporizer. It is of great importance, but the thorough constitutional treatment is even greater.

#### THE OPERATIVE SURGERY OF GASTRIC ULCER.

HEYDENREICH (*Semaine Médicale*, Feb. 2, 1898) gives the indications for surgical interference in ulcer:

1. In perforation it is absolutely necessary as early as possible before the perforation, and to wash out the abdomen. Since 1894 the mortality after operation has fallen to 52.94 per cent., and without operation the condition is almost necessarily fatal.

2. For stricture of the pylorus. In this condition it is hard to distinguish obstruction from swelling of the tissues around the ulcer, or from pyloric spasm from true fibrous stricture. For the latter there are three possible operations: (a) Resection of the pylorus; (b) gastro-enterostomy; (c) pyloroplasty. Of these the first is the most dangerous, and has no advantages over the others, unless the ulcer can be excised with the pylorus. Pyloroplasty is not applicable if the ulcer extends to the pylorus, or where the pylorus is adherent, and its walls have lost their softness. When there is a choice between the second and third methods, Mikulicz prefers pyloroplasty.

3. Operation may be required for adhesions or abscesses in connection with the ulcer. These are mostly very hard to diagnose, but it must be remembered that in some cases of persistent pain exploratory laparotomy is justified.

4. For hematemesis. Since sudden death is the exception, and many cases recover with medical treatment, the propriety of operation is still doubtful. Hartmann's twelve cases gave eight deaths and four recoveries. The author believes the chief point to be the quantity of blood lost. For violent hemorrhage laparotomy has almost always failed. Sometimes the infiltration of the surrounding tissues has rendered excision of the ulcer or ligaturing the bleeding vessel impossible. Often the bleeding comes from a branch of the splenic artery, whose territory is very dif-

ficult to reach, and sometimes the ulcer has been too small to be found. For slighter hemorrhages which become dangerous through repetition, operation may be successful; usually pyloroplasty or more often gastro-enterostomy has been performed in such cases with a view to procure rest of the stomach, and consequently of the ulcer and its healing.

5. This last consideration has led some to propose gastro-enterostomy for cases of uncomplicated gastric ulcer. The general death-rate for all cases of gastric ulcer is twenty-five to thirty per cent., for gastro-enterostomy only 16.2 per cent., and therefore the operation has less danger than the disease. Another advantage of not waiting for complications is that the patient is in better health. At any rate cases that do not improve with medical treatment in a reasonable time should be treated surgically.—*British Medical Journal*, March 26, 1898.

#### *TUBERCULOSIS OF THE FEMALE GENITALIA.*

T. E. MCARDLE (*American Journal of Surgery and Gynecology*, April, 1898) states that when a patient presents herself with local irritation which she has observed in the form of a slightly hardened mass, sometimes described like that of a split pea, located about the vulva, found at some point about the anterior or posterior fourchette at the opening of the vaginal outlet, or within the walls of the vagina, perhaps seen as a distant grayish-looking ulcer about the lacerated cervix, an elongated posterior lip of inflammatory tissue, with possibly a profuse leucorrhœal discharge in many instances not irritating, yet so great in amount as to be distressing, perhaps now and then tinged with blood, we should not delay in looking for tubercle bacilli. When a serous bloody discharge is persistent, we should carefully consider the element of malignancy, especially if the odor is very pronounced.

Whenever the labia become the seat of local tuberculosis, the moisture and warmth of the parts favor early necrosis, but the odor is believed to be less unpleasant. The edges of the resulting ulcer are thin, purple, undermined; the base irregular, secreting a scanty, thin, puriform discharge. One point is at times healed, while the ulcer is spreading in another direction. Extension and destruction of tissues vary greatly. There may occur hemorrhage from erosion of blood-

vessels. It is apt to occur more frequently in young people, accompanied by tuberculosis of other parts of the body, and will recur at times after apparent healing. "Differentiation is not always easy as between epitheliomatous, tubercular and syphilitic ulceration, but may usually be based upon the following points: (1) Age of patient; tuberculosis is more frequent in early life and epithelioma in late life. (2) The history; antecedent syphilis; tuberculosis in other parts of the body. (3) Appearance of ulcer; more abundant fetid secretions from epithelioma. (4) Effect of treatment. (5) Bacteriological tests." When we are to exclude all the external parts, and we find that the disease is confined to the cervix, we must remember that the error has not infrequently been made of vaginal extirpation being performed for what was supposed to be carcinoma, but which in reality proved to be tuberculosis; therefore it is our duty in all cases in which there may be the least possibility of a doubt as to its being one of carcinoma or of tuberculosis to make microscopical examinations as early as possible.

Of treatment we may well say: It is the cases of local ulceration that present about the vulva, the walls of the vagina and on the cervix that the most gratifying results follow from the careful, thorough use of ichthyol, iodine, aristol; and careful curetting, complete extirpation of inflammatory areas of implicated tissue, the removal of diseased glands, repair of the lacerated cervix, the free lancing and leeching of vesicles that may present at different points, and packing with iodoform gauze. In all cases of tubercular endometritis thorough curetting should be employed. The wiping out of the cavity of the uterus with carbolic acid, the use of the peroxide of hydrogen and careful packing by means of strips of iodoform gauze should be tried exhaustively. If there should be a recurrence of the trouble, removal of the organ is advised.

Now, if we bear in mind that tuberculosis of the body of the uterus is so frequently associated with the same disease in the tubes and ovaries, it seemed to the author that, having once ascertained, without the shadow of a doubt, the existence of tubercular disease in the uterus, it is our duty to look for a similar condition of affairs in the tubes and ovaries; and while we may not achieve the same exactness of diagnosis in regard to these organs, yet if we can be morally certain of their diseased condition, it behooves

us to waste no valuable time in curetting the uterus and treating it with iodoform, but to proceed at once to the performance of an abdominal section for the removal of the uterus, tubes, and ovaries. This heroic method of treatment is advocated in primary disease of these organs. In a case complicated by tubercular peritonitis there would be no special danger in removal of the tubes and ovaries, and the operation might be of benefit to the general peritonitis, as numerous cases are on record where simple exploratory laparotomy has cured tubercular peritonitis. Later the uterus could be curetted and cauterized. If, however, the patient be also affected with phthisis, the surgeon may well hesitate about operating. If the pulmonary tubercular disease be far advanced, it is not proper to subject the patient to the risk of an abdominal section. But in the earlier stages of phthisis, if the general condition be fair, operation is justifiable, provided the patient can subsequently be placed in the very best hygienic and climatic environment.

One thought as to prophylaxis. Here, as elsewhere, prevention is better than cure. Careful study of the male genitalia has made plain the fact that tubercular disease is not uncommon in those organs; and men so diseased should be cautioned as to the danger of establishing or maintaining marital relations.

#### THE SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.

ANZILOTTI (*La Clin. Mod.*, An. 4, n. 7) draws attention to the successful results obtained by surgical interference with the cervical sympathetic in the treatment of exophthalmic goitre. Unilateral, or better still bilateral, excision of the superior or middle cervical ganglion with the intervening cord brought about notable improvement in fourteen cases. Diminution of the exophthalmus, goitre, and tachycardia, and in many cases true cure, occurred after this procedure. No trophic disturbance followed, nor organic alteration in the integrity and power of accommodation. Myosis was the most constant after-effect; congestion of the face, lachrimation, and hypersecretion of nasal mucus was also observed. When no result follows the operation it is probably owing to some abnormal anatomical distribution of the cervical sympathetic. On the theory that exophthalmic goitre is due to some poison in the thyroid circulation, it is difficult to explain

why the vasomotor disturbances should be localized to the upper part of the body alone. —*British Medical Journal*, March 26, 1898.

#### A CASE OF SUBGLOTTIC STENOSIS FROM SYPHILITIC GUMMA.

In weighing the relative merits of tracheotomy and intubation in these cases, Dr. DAMIENO (*Archiv. Ital. di Laryng.*, No. 3, 1897) offers the following deductions:

1. Except in rare instances, intubation should always be preferred to tracheotomy in all cases of acute stenoses, and especially in children of all ages.

2. Intubation may be substituted for tracheotomy in acute and chronic stenoses of adults, especially when it does not refer to an incurable affection. It is only necessary that the passage of the tube may be effected, and that it will remain in position with a reasonable amount of certainty.

3. Intubation is the best method of permitting the removal of the cannula in tracheotomized patients, after the passage has been enlarged by the ordinary catheters or the sounds of Schrötter. —*The Laryngoscope*, vol. iv, No. 4.

#### MINIATURE HAMMERS AND THE SUTURE OF THE BILE-DUCTS.

W. S. HALSTED (*Bulletin of the Johns Hopkins Hospital*, April, 1898) holds that the surgery of the common bile-duct is still in its infancy. "Suture of the thickened duct is difficult enough, and suture of the normal duct out of the question," says one. "It is not worth while to exercise such great care in sewing up a slit in the common bile-duct, for it is almost impossible to prevent leakage, and a little additional leakage can do no harm if one drains," says another. "Wait until the common bile-duct dilates and thickens before venturing to open it," say all surgeons.

To close an incision in the normal ductus communis choledochus has been considered so impracticable, not to say impossible, and the result of the suture, so far as the suture itself is concerned, even of the abnormally thickened duct, so uncertain, that it is the practise of all surgeons to wait weeks or months or even years for the duct to dilate and thicken rather than interfere promptly in cases of obstruction of the common bile-duct by stone.

It is perhaps justifiable to "give Nature a chance" to expel the stone, but the operation

should never be postponed solely for the sake of giving the duct time to get thicker. The author knew from operations upon dogs and man that the normal bile-ducts can be sutured easily, accurately, almost infallibly, and without danger of leakage and constriction.

We are all more or less acquainted with the more evident dangers of postponing choledochotomy when it is indicated; the deep jaundice, the retarded blood coagulation, and the consequent danger from hemorrhage, whether an operation is performed or not; the cirrhotic hypertrophy of the liver and the concomitant hemorrhages into stomach and intestines; the acute or chronic inflammation of the bile passages; toxemia, cholemic or infectious; and the interference with metabolism, more serious, perhaps, in its remoter consequences than we have estimated. And when at last the operation is resorted to the patient is perhaps so weak that the surgeon might well wish that he had interfered earlier.

The duct lies in a deep hole, at a great distance from the surface, and it is covered by the liver, which is usually enlarged in the cases which we are considering, and which, if very large or very small, may embarrass the operator exceedingly. The suggestion of Dr. Fred. Lange to cut through one or two ribs and the diaphragm when the liver is very large we have found invaluable. And not only when the liver is large have we profited by this hint; for once when it was small and high up under the ribs, the duct, carried up with it, was perhaps even less accessible than in the cases complicated with large liver.

Once, then, because of a small liver, and several times because the livers were large, has the author divided ribs and diaphragm, and each time with gratifying results. When operating upon the bile passages of dogs he divides two or three ribs and the underlying diaphragm as a matter of routine. Cutting through a few ribs and the diaphragm on the left side enabled him to remove a large and very adherent tubercular kidney.

With the little hammers which he describes, or with a similar contrivance, he has five times sutured the common bile-duct in dogs, and twice the common duct and once the cystic duct in the human subject.

The little hammers answer the purpose better than the rods. Within the past three weeks he has twice used the hammers on human subjects. If properly employed they convert one of the most difficult operations

in surgery into quite a simple one. The hammers are of sizes to meet all cases, from the normal duct in a dog to a much dilated human duct.

It is not necessary to dissect the duct from its bed, but the wall of the duct should be clearly exposed at the site selected for the incision. The author usually incises the common bile-duct near its duodenal end because the diverticulum of Vater can be more thoroughly explored through an incision at this end of the duct, and because it is easier to suture this end than the other cystic end of the duct.

Before incising the duct, two presection stitches, to serve as retractors, should be taken. These stitches, which are subsequently removed, should enter the lumen of the duct. They are placed close together, and the incision into the lumen of the duct is carried between them.

The stone having been removed and the gall passages thoroughly searched with probe and fingers, the retractor threads are drawn apart and a hammer of the proper size introduced. The duct is then gently raised from its bed and drawn towards the operator by the hammer, the head of which is of course longer than the incision. Mattress stitches are then applied—one over the heel behind the handle of the hammer, and the others in front of the very delicate handle.

Although the finest possible needles and silk are used, the stitches necessarily perforate the wall of the normal duct. No harm results from this perforation, however, for the normal duct practically always, and the thickened duct usually, is sterile, and the stitches very soon cut their way out of the lumen and out of the wall of the duct and lie free in the adventitious tissues.

The silk which Halsted uses is very fine, and the needles, made by Wulff-Luer of Paris, have a split eye and are almost as fine as the silk itself. One should have a needle-holder especially made and reserved for these needles. If such a needle-holder is used for coarser work it will soon be ruined.

The author has been asked why the handle was not placed in the middle of the hammer. It is placed as near one end as practicable, to enable the operator to introduce the hammer through as small an incision as possible, an incision not longer than about half the circumference of the hammer.

The advantages of the hammer are:

1. The duct to be sutured can be drawn towards the incision in the anterior abdom-

inal wall and within easy reach of the operator; it can also be manipulated nicely by the hammer.

2. The duct, whether normal or thickened and dilated, is greatly expanded by the hammer; hence the stitches can be taken with great accuracy and without fear of including the opposite wall or of occluding the lumen of the duct.

3. The operation is a very clean one, because the hammer blocks the duct, and this prevents the escape of its contents and the contents of the gall-bladder.

4. With the hammer, wounds of thin normal ducts can be easily and almost infallibly sutured, and hence the surgeon may, if he chooses, fearlessly operate upon the common duct as soon as the obstruction takes place.

The sewing of the thickened and dilated ducts is also greatly facilitated by the employment of the hammer.

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#### SOME POST-OPERATIVE LESIONS AND SEQUELÆ.

JOSEPH PRICE (*American Journal of Surgery and Gynecology*, March, 1898) says it must have come to the notice of many operators that there are numbers of useless, often harmful, operations. It seems a common affair for surgeons (or those passing as such) to work some little end at the expense of all the risk of the regular operation, which should be done. They have only in view some temporary or peculiar benefit, without sufficient consideration of the subsequent work necessary to complete the cure. Our great natural aid lies in the recuperative abilities of the patient; but what can one expect when her vital powers are taxed for recovery from numerous ill judged operations? It is surely a matter for considerable caution. The excuses are few for repeated operations.

We will view repeated operations from two standpoints: One is where pathological conditions and the broken-down condition of the patient are such as to render a complete operation of extreme peril to the patient. To determine this question—the extent to which procedure is safe—is one of the most serious that appeals to surgical judgment. It is only such conditions that justify leaving anything for a second operation. The other and more frequent reason for reoperation—the one least to be justified, the one which is a reproach upon our surgery—is the attempted work of ignorance or that which cowardice leaves uncompleted.

Statistics have now become too much a matter of mere advertising concern, and are therefore of little value. All of us are concerned in our mortality, all want their patients to recover; but mere recovery from an operation does not in many instances mean a cure—the terms are not synonymous. Indeed, the condition of the patient, after so-called “recovery” from certain operations, is worse, the suffering greater, and life in greater peril than before.

Mere experiment is also responsible for very many repeated operations. This experimenting is not limited to the young—those fresh from our college benches. Experience convinces the author that many of our young men are more conscientious than some of their seniors. The former push their special work until they have a fitness for it. This they can afford to do, for when they begin they will know how, and therein lies the secret we are all seeking.

In every case there should be a reasonable certainty as to existing trouble, otherwise it is impossible to determine upon the method of treatment. But the error is not always of diagnosis; the operator may be moved by the craze to operate.

The subjects of these unjustifiable operations—operations for slight or undefined troubles—receiving no relief, will permit a real trouble to grow until conditions become such that relief by the most skilful surgery is difficult and of uncertain result. In many of the cases of repeated operations, the primary operation was unjustifiable; there was error of diagnosis; doubt and speculation in the mind of the operator as to existing trouble. The primary operation may create conditions, set up adhesions, which make the second operation difficult and dangerous. All forms of exploratory operations imply ignorance and doubt, and are responsible for much of the work that has to be repeated. It is true that there are cases where an exploratory procedure serves a good purpose, and, when done under proper surgical methods and with absolute cleanliness, involves no great risk to the patient. It should be kept in mind that all surgical procedures involve more or less risk.

The tolerance of the peritoneum has tempted to a great deal of surgical nonsense, often to a carelessness or rashness which sets up pathological conditions requiring radical surgery for their correction. The author names a few of the procedures which give us a large percentage of second

operations: (1) Dilatation and curettement; (2) vaginal puncture; (3) vaginal hysterectomy. Then comes the operation that cures—abdominal section, the freeing of omentum and bowels both large and small, the removal of pathological conditions, irrigation and drainage.

In appendicitis a second operation is often necessary to relieve obstruction or break up adhesions which were the result of the incomplete primary operation. In many of these cases, as in others, the complications are so great and extensive that the operator, not having the knowledge and skill, or lacking courage, abandons the procedure with the entirely too common apology, "inoperative," "hopeless." The freeing of visceral adhesions in primary operations is rare, and for this reason very much work is to be gone over again and with all the difficulties aggravated tenfold. Too many operators are content with the simple removal of a growth, without correcting the fixation or pathological conditions about it. A partially adherent bladder, if not freed, will remain a perpetual source of annoyance. Bands of adhesions about the ileum, if not freed, form the post-operative obstruction we see so commonly reported. The removal of remaining and irritated material, careful trimming of all ragged, fringy adhesions, clearing away of all débris and clot, and well placed drainage at the seat of oozing, will favor a perfect cure.

It is sometimes necessary to retie old pedicles when portions of original cyst or tumor remain in the pedicle, and cut or scrape with a sharp knife the dirty seat of dead ligatures, and stitch healthy peritoneum over these parts.

Unfortunately, too many poor women continue to suffer from post-operative lesions; they are told to have patience, that the symptoms will vanish. Very frequently there is opposition on the part of the physician to reopening and correcting the mischief; some look upon visceral adhesions as necessarily fatal. A few of us do not consider an operation complete until all visceral adhesions have been carefully freed and repaired and left in as normal a condition as possible; after the repair of viscera for the removal of growths placing all viscera in physiological relation. A number of prominent operators remove tumors without examining surrounding parts. When we hear of a case operated upon two or three times by the same operator, we have no difficulty in forming an estimate of his

surgical ability. We know that in his primary operation, in his second and probably third venture, he left something behind he should have removed at first; all through he was doing incomplete work. While the author fully realizes that too much surgery in extremely debilitated patients will kill just as surely as none at all, yet wrong methods of procedure must always have much to do with the necessity for repeating operation.

Our courage should be strong. We want great masters in our science to grow up among us. Frequently some one of our medical or surgical brothers comes running out of the bushes crying, "I have found something." It is usually a germ, an antitoxin, or a new method; as a rule they amount to nothing.

There are few more potent factors in the mid-direction of our surgical efforts than the importunities of our subjects for immediate bodily relief or comfort. This idea has, the author is sure, more influence with the younger practitioners anxious to please and show their resources. This brings up the important fact that a clear judgment as to methods for the eventual welfare of the patient must be uninfluenced by any consideration of present desire. Of course, we would not bar any harmless comfort, since we aim always at a favorable condition of mind; but there can be no doubt that even a quick sympathy will urge the physician to hesitancy or a rash performance. He must be far above any effects of the patient's talk.

As we age, as our experiences crowd upon us, our science, with all its mysteries, becomes a clearer science; and as more weighty grow our responsibilities, the more enlarged our conceptions of duty, the more keenly do we feel the issues we carry in our hands.

#### EXCISION OF ILIAC ANEURISM.

DOLLINGER (*Pest. Med.-Chir. Presse*, 1897, No. 49) showed, four months after the operation, a man of thirty-two, from whom he had removed an aneurism of the right external iliac artery. The patient had had a pulsating swelling in the right groin for some two years, but could trace it to no traumatic cause. The aneurism was situated at the right external iliac artery into the femoral, and was two and a half inches long by one and a half broad; it had grown very rapidly during the past few months. The patient could not stand the pain of digital compression, so that an operation became necessary.



The Hunterian operation was regarded as risky, as the artery could not retract and there might be severe secondary hemorrhage; and the recent statistics of Delbet induced the author to adopt a modernized form of Antyllus's procedure. The prognosis in the matter of liability to gangrene was most favorable, as it was found before the operation that a collateral circulation already existed. An incision was made parallel to Poupart's ligament, the aneurism pushed forwards and the peritoneum upwards, and the artery was tied nearly an inch above the former. The narrow femoral, which was only of the size of the temporal, was next ligatured, and the sac dissected out and removed. The limb at first went pale, but under massage it became yellowish, and finally of the normal color. The patient made an uninterrupted recovery, and when shown had good use in his limbs.—*British Medical Journal*, April 2, 1898.

#### COXA VARA.

DE QUERVIAN (*Semaine Médicale*, Jan. 29, 1898) has collected the literature of a little known deformity of the hip described recently under the name of "coxa vara," from analogy with genu varum. It consists essentially in a downward bending of the neck of the femur, the head being lower than the head of the great trochanter. Several varieties have been described: (a) Congenital (rare). (b) Infantile (rickety coxa vara): (1) simple bending downwards of the neck (Kocher's coxa adducta); (2) bending of the neck downwards and backwards. (c) Coxa vara adolescentium: (1) Kocher's coxa adducta; (2) downward and backward displacement of the neck with rotation of the head on its long axis; (3) elevation of the trochanter and inward rotation. (d) Coxa vara of adults (the only observed case due to osteomalacia).

Frequency: This deformity, at any rate the rickety variety and that found in adolescents where there are generally no signs of rickets, is much more common than is generally thought.

Sex: Males more often affected than females.

Etiology: In infancy, rickets; in adolescence, probably late rickets as in genu valgum, where the other signs have disappeared, or rarely cretinism, or possibly juvenile osteomalacia. Predisposing causes are inflammatory processes in the neck of the femur, either tuberculous or osteomyelitic, and also

employments necessitating much standing or lifting weights. Frequently an injury precedes it or aggravates the already existing condition. It is usually unilateral.

Symptoms: The onset is insidious pain, often felt chiefly in the knee, being the first symptom; then limping, with perhaps difficulty in kneeling and sitting. The pain is worst while the process is developing, but while pain usually decreases the joint stiffness often increases progressively.

Physical signs: Projection of the trochanteric region with a depression between great trochanter and glutei; thigh muscles usually atrophied; abduction of hip always limited, with tendency to adduction. Where the downward bending of the neck is combined with a backward displacement and rotation of the head the signs are more marked. The limb is then rotated outwards and adducted, while internal rotation and often flexion are impossible. The trochanter is above Nelaton's line in all cases. Prognosis depends on age. Before five years the deformity is due to rickets, and may disappear spontaneously; after this age a functional improvement only is possible through adaptation to the new conditions.

Diagnosis: From (1) forward dislocation of the head; (2) recent fracture of the neck, if after an injury there is great aggravation of the pain; (3) from old fracture with resulting deformity; (4) separation of the epiphysis; (5) congenital dislocation; (6) tuberculous disease. In the latter case the chief point is that though in early hip disease there may be slight external rotation, this is accompanied by abduction and flexion instead of adduction without flexion.

Treatment: (1) Of any constitutional disease such as rickets. (2) Absolute rest in bed with permanent extension relieves the pain and improves the movements and helps spontaneous straightening in rickety cases. (3) When the case has gone on for some time and the difficulty of walking, etc., is great, some form of osteotomy (the author prefers linear of the neck) must be performed.—*British Medical Journal*, April 2, 1898.

#### BOTTINI'S OPERATION FOR HYPERTROPHY OF THE PROSTATE.

FREUDENBURG (*Berl. Klin. Woch.*, No. 46, 1897) reports a case of complete retention from prostatic hypertrophy in a patient aged sixty-three, which was entirely removed by galvano-caustic incision of the enlarged

gland after the failure of bilateral castration. The urine, which after the first operation had remained turbid, became quite clear after the second, and the patient is now able to relieve his bladder regularly without using a catheter. This case, it is stated, shows that Bottini's operation acts directly by removing the obstacle to the discharge of urine, and not, as has been suggested, by merely destroying the orifices of the ejaculatory ducts, and the ganglia and nerves which extend to the vesiculæ seminales and vasa deferentia. It is of practical importance also, as it suggests a doubt whether it be advisable to perform castration for relief of urinary retention before an attempt has been made to overcome this result of prostatic enlargement by galvanic incision of the gland.—*British Medical Journal*, March 26, 1898.

#### INJURIES OF THE URETER.

Mr. HENRY MORRIS, the Hunterian lecturer at the Royal College of Physicians of England for this year, has recently published in the *Edinburgh Medical Journal* an exhaustive paper on "Injuries of the Ureter." This paper has a close connection with the Hunterian Lectures (abstracts of which we shall shortly publish), their general title being the "Origin and Progress of Renal Surgery." He confines his remarks to subparietal injuries, excluding penetrating wound, of which there is only one undoubted case on record, and obstetrical injuries which come for consideration under ureteral fistulæ. Twenty-three cases are to be found in surgical literature published as injuries of the ureter, but of these only eleven can be considered as injuries of the ureter proper, the remaining twelve being cases of rupture of the renal pelvis or of the renal substance opening calyces and giving rise to extravasation of urine. These eleven cases fall into three classes: verified cases of rupture of the ureter (two cases), with extraperitoneal extravasation and tumor in one and with intraperitoneal extravasation but no tumor in the other; probable rupture of the ureter with extravasation (four cases); and contracted ureter with hydronephrosis, etc., possibly due to ureteral injury (five cases). The causes comprise forcible compression of the body between two hard objects, kicks from horses, the passage of a wheel over the trunk, falling down stairs, the bursting of a shell, and a violent jerk in jumping from a horse.

When the ureter is torn through and the

peritoneum remains intact (as it usually does) a tumor will sooner or later be formed by the accumulation of urine in the retro-peritoneal tissue; but if the ureter be not torn through, but contused or otherwise injured, a tumor will in course of time be formed consisting of one or other of the varieties of obstructed kidney, namely, renal abscess, pyonephrosis, hydronephrosis, or polycystic kidney. If the ureter be at once completely obstructed by blood-clot and remain so, atrophy of the kidney will probably result.

In two of the eleven cases a communication was formed between the cavity containing urine and the large bowel. The symptoms of rupture of the ureter are not characteristic; for a time there may be only pain and tenderness, and no indication in the urine of any injury. Hematuria may be entirely absent, or it may be slight and transient. If the ureter alone be ruptured the hematuria is not likely to be considerable or prolonged, but slight hematuria or even no hematuria may occur in renal as well as in ureteral injuries. If one or both kidneys are seriously injured there may be incomplete or complete suppression of urine. Pain and tenderness at the part injured is a common immediate symptom. The pain may be referred to the loin, the front of the abdomen, the umbilicus, or to the middle of Poupart's ligament. This pain may pass off in a day or two and the patient remain quite free until fresh pain is caused by the development of a tumor. Transient collapse and vomiting may occur. In some of these cases there was ecchymosis over the loin, the abdomen, and the inguinal region.

If the patient survives a swelling will form due to a retro-peritoneal collection of urine, or urine and blood, or to one or other of the changes which supervene in the kidney. If of the former variety, the swelling forms early, in a few days or weeks, but if of the latter only in many weeks, months, or even years. The tumor is usually well defined, palpable from the loin and front of the abdomen, and may extend from the thorax into the false pelvis. As soon as the fluid in the retro-peritoneal space decomposes inflammation, suppuration or sloughing occurs with corresponding symptoms, viz., increased pain, redness of the skin of the loin, edema of the abdominal wall, pyrexia, furred tongue, anorexia, and constipation or diarrhea. Fluid drawn from the tumor before the occurrence of suppuration has the characters more or less pronounced of urine, but it is generally alka-

line, of low specific gravity (1008 to 1010), and contains very little urea and probably a little albumen and blood; when septic changes have occurred it contains pus. On the other hand, when the tumor is formed by the kidney itself and a long time after the accident, the case will probably be considered as one of the forms of renal enlargement and not at all in relation to injury of the ureter.

The ideal treatment for rupture is immediate suture or anastomosis of the ureter, but this is usually impossible as the diagnosis cannot be made until some time after the injury. Puncture of the retro-peritoneal cyst has been adopted, but with uncertain result. A free incision in the ilio-costal space will secure evacuation of the extravasated fluid. If the ureter is not completely torn across the experience afforded by operations for calculi affords grounds for the expectation of the cicatrization of the wound and the re-establishment of the ureteral channel. The incision may be prolonged towards Poupart's ligament, passing a finger's breadth in front of the anterior superior iliac spine. It will no doubt be difficult to trace the ureter, but the search may be facilitated by remembering that it is carried forwards with the detached peritoneum, to which it is attached about half an inch or more external to where the peritoneum is tied down to the spinal column. But in none of the recorded cases has the site of the injury been ascertained and suture accomplished. If the rupture cannot be found the incision in the loin and drainage will give the most favorable opportunity for repair; there is abundant evidence that surgical wounds of the kidney, pelvis and ureter will heal without sutures. If the ureter be completely torn asunder its ends should be anastomosed; if this cannot be done a permanent fistula in the loin is to be expected, which will save the integrity of the kidney. When suppuration has occurred its consequences may necessitate nephrectomy.—*The Lancet*, April 2, 1898.

#### CONTUSION OF THE ABDOMEN.

NIMIER (*Archives de Médecine et de Pharmacie Militaires*, March, 1898), writing on this topic, formulates the question, Should the surgeon practise immediate laparotomy on every patient who has been kicked in the belly by a horse? He answers this by a guarded negative. Seven times in the last year he has temporized and all his patients

have recovered. He has collected 307 cases of abdominal contusion by horse-kick treated expectantly, and of this number 215 recovered and 92 died. Of 38 cases in which intervention was practised, 26 died; 12 recovered. In but three of these latter could the operation be considered imperative. In one successful case there were no intestinal lesions, nor was there any blood in the peritoneal cavity, hence it is probable recovery would have taken place without operation. Four successful laparotomies were practised twelve to fifteen hours after accident, three from fifteen to twenty-four hours, two the second day after, and one after a time not definitely designated. As to laparotomies followed by death, three were performed in less than twelve hours from the time of accident, twelve in from fifteen to twenty-five hours, nine more than twenty-four hours after, and two after a time not noted.

A very brief consideration of the above figures should suggest the thought that the general adoption of a rule to the effect that every person kicked in the stomach by a horse should be at once cut does not seem to be wise. Unfortunately, there is no absolutely characteristic sign which would lead us to be certain that the intestine has been torn. It is usually necessary to wait for peritoneal reaction and symptoms of general intoxication before the presence of this accident can be determined. The amount of shock is by no means an index as to the presence or absence of visceral lesion. The same can be said of quite a severe localized pain. It is usually necessary, then, for the surgeon to hold himself prepared for operation. In the meantime the patient must be carefully watched.

The author recognizes four morbid types consecutive to rupture of the peritoneum following horse-kick. In the first type peritoneal symptoms are prominent. Pain becomes more severe and generalized, the belly becomes distended, the muscular walls rigid; then nausea, bilious vomiting, hiccough, constipation, retention of urine, or anuria. The autopsy shows purulent peritonitis with false membranes. Among the general symptoms may be noted peritoneal fascies, hyperpyrexia, rapid and small pulse, frequent and superficial respiration, rapid emaciation, delirium, collapse, and death. The second type is like the first as far as peritoneal reaction is concerned, but in place of hyperpyrexia there is subnormal temperature, consequently a disassociation of the temperature and pulse.

the latter, together with respiration, being rapid. Intense vascular congestion is found at the autopsy, and ecchymosis with the false membrane. In the third and fourth types peritoneal symptoms are comparatively inconspicuous. Those of general intoxication, however, are pronounced. In one type there is pyrexia, and in the other subnormal temperature. They represent a peritoneo-intestinal septicemia. At the autopsy of a case of septicemia characterized by high temperature, false membranes and purulo-sanguinolent liquid were found in the peritoneal cavity. In the second type of septicemia with subnormal temperature neither adhesions nor pus are found, but a small quantity of reddish, sometimes fetid, liquid.

It is safe to adopt as a principle that on the first symptoms of peritoneal reaction or of general intoxication, laparotomy should be practised. As to the practical application of the author's study he holds that every patient kicked in the belly should be at once transported to the hospital. There, after having taken a careful history of the accident, the surgeon should institute an expectant treatment based upon the limiting of shock and the indices of intestinal lesion. The patient should be immobilized in bed, should have heat applied to him, should receive proper applications for pain, and should be put on an absolute diet. He is watched carefully, and every half hour the temperature and respiration should be recorded, together with a note of the general and local symptoms. As soon as the symptoms of peritoneal reaction or general infection become distinctly marked intervention should be practised.

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*EXTERNAL URETHROTOMY: SOME OF THE INDICATIONS FOR AND METHODS OF OPERATING.*

The *Pennsylvania Medical Journal* for March, 1898, contains an article with this title, contributed by J. D. THOMAS. He completes his paper as follows:

When there is no obstruction to the introduction of a grooved staff the operation is simple and can be quickly done. An incision beginning back of the scrotum and carried in the line of the raphe to within one-half or three-fourths inch of the anus is made. The skin, superficial and deep layers of fasciæ are first incised, when the accelerator urinæ muscle comes into view. This is a rather fleshy muscle, and when it is reached the groove of

the sound should be located with the nail of the left index-finger, and a knife with a double edge at the point should be thrust into the groove with precision. If the knife does not enter the groove in the staff on the first attempt the fibers of the muscle fall together, so that when the following attempts are made to strike the groove the muscle is minced to that degree. After the point of the knife has entered the staff the incision in the urethra can be enlarged to the extent desired by sweeping the point of the knife along the groove in the staff. If it is desired to introduce the finger into the bladder, a grooved director is passed along the staff into the bladder, the staff being now removed, and the floor of the urethra, in the direction of the bladder, incised, with the director as a guide. If necessary, the bladder may be then flushed with any solution desired.

If the operation is undertaken for a tight stricture, a filiform is first passed into the bladder, then over this a tunneled instrument is passed until it presses against the face of the stricture. The incision in the perineum is now made on to the end of the tunneled instrument, when the black filiform comes into view. The incision follows this as a guide until the stricture is split. The grooved director may now be introduced and the operation proceeded with as indicated above.

Sometimes cases are met with where it is impossible to introduce an instrument into the bladder to serve as a guide. This condition is encountered where the urethra has been lacerated or torn off by traumatism; occasionally from stricture due to gonorrhea. In these cases a sound as large as can be introduced is passed down against the stricture and an incision made through the perineum on to this. A better instrument for this purpose is Wheelhouse's staff. The incision is made into the groove on the end of this instrument, which is then turned around, *in situ*, and the upper end of the wound is caught with the little knob on the distal end, which is at an angle with the shaft. A ligature—artery clips will answer—is now placed on either side at the bottom of the wound, and by making traction on these three the finding of the urethra is facilitated. Where the stricture is due to gonorrhea the continuity of the urethra is not disturbed, and the urethral canal may be traced along toward the bladder. When the inability to pass a filiform guide is due to a rupture of the urethra, or when it is torn off, the distal portion of the urethra is very difficult to find. If

it cannot be found readily, rather than make mince-meat of the perineal tissues and subject the patient to prolonged anesthesia, it is better surgery—and the proceedings can be conducted with precision—to do a suprapubic cystotomy and find the posterior portion of the urethra by retro-catheterization. With one sound passed through the meatus externus, the other through the bladder and meatus internus, the torn urethra is brought into apposition without destructive dissection, when it may be sutured if desired, and an opening made into the bladder through the perineum farther back.

The author wishes here to mention a little wrinkle in operating upon the urethra that has served him to excellent purpose on five occasions. On these occasions he encountered strictures in the penile urethra that would admit nothing larger than a filiform. Then on attempting to pass the smallest tunneled cutting instrument they were found so dense that they could not be penetrated. In attempting to force the instrument along the guide, the penile organ would be crowded down into the subpubic space or doubled upon itself. To overcome this trouble he drew the distal end of the filiform out through the perineal wound already made and tied to this a silk thread, then withdrew the filiform by the meatus, bringing with it the thread, so that one end of the thread projected from the meatus, the other from the wound. Taking hold of these ends he resorted to an up-and-down sawing motion, while an assistant made pressure on the under surface of the organ immediately opposite the seat of stricture. After enlarging the caliber of the stricture in that way, the instrument was slipped along the thread, which now served as a guide.

Every author with whom the writer is acquainted recommends that, after this operation, a drainage tube be introduced through the wound into the bladder and that a packing of iodoform gauze be placed around this; or that a soft-rubber catheter be passed into the bladder *per urethram* and tied in. In his estimation this is not good treatment. In the first place, it is painful for the patient; in the second place, it requires a good deal of care on the part of the attendant; in the third place, the drainage tube soon becomes filthy and the packing becomes saturated with urine, which undergoes decomposition, thus necessitating frequent change, with its accompanying pain; and in the fourth place, when the catheter is tied in, a urethri-

tis is surely set up. The writer's practise is, that when the operation is over, he places the patient in bed with a rubber urinal under him, the urethra is irrigated three times a day with Thiersch's solution, and the perineal wound is kept clean and is irrigated with a bichloride of mercury solution 1:4000. The urine for the first few days is continually passing through the wound, and thus we have an automatic flushing of the wound with an aseptic and antiseptic solution, which the urine is. The patient is absolutely comfortable; his convalescence is rapid, for these patients sometimes leave the hospital perfectly sound in two weeks. The only discomfort he experiences is when—twice a week—the sound is passed. The author never puts in a drainage tube unless it is to control hemorrhage, which seldom occurs from the operation *per se*, or when he wants to keep the wound from healing too rapidly, or when the urethra has been sutured.

#### GENU RECURVATUM.

GERARDT MARCHANT (*Revue d'Orthopédie*, No. 1, 1898) publishes a rare case of acquired genu recurvatum. The patient, a lad aged seventeen, had been treated when five years old for an abscess in the right thigh. After this had been opened, there was during two years a continuous discharge from two openings, which, when finally closed, were replaced each by a permanent scar—one superficial and mobile, on the front of the thigh, the other depressed and fixed to bone, on the outer surface. The deformity which developed slowly after the complete healing of the abscess was characterized by marked hyperextension of the right leg, which formed with the thigh a retiring angle of 160°. When the patient was recumbent on his back, the only portion of the right lower limb which touched the couch was the popliteal region. The patella was elevated far above the knee, and fixed in front of the thigh. The muscles of the thigh were much wasted. The leg was fixed, and the affected limb was shorter than its fellow by a little more than two inches. On careful examination of the thigh the author made out a stiff and tense cord, evidently formed by the lower half of the quadriceps muscle, stretched from the middle of the thigh to the patella. It was assumed that the previous suppurative affection—probably of osteomyelitic origin—had resulted in abnormal adhesion of the extensor muscles to the front of the femur,

and that the portion of the quadriceps intervening between two fixed parts, namely, its insertion below and its adhesion to the bone above, had been prevented from keeping pace with the femur in the vertical growth of the limb, and had thus produced slow and continuous hyperextension. It was decided therefore to separate the adherent portion of muscle from the bone, and thus to overcome the hyperextension, and to reestablish the normal relations of the articular surfaces of the knee. An operation, which consisted in subcutaneous detachment of the quadriceps from the femur, and in division of the tense cord formed by the lower part of the muscle, was followed after a time by satisfactory results. The limb, it is stated, was restored to the normal position, and there was a fair though not complete range of the movements of flexion and extension at the knee. —*British Medical Journal*, Jan. 29, 1898.

#### THE RADICAL TREATMENT OF HYDROCELE.

BLOCK (*Revue de Chirurgie*, Feb. 2, 1898) describes a new operation for the radical cure of hydrocele of the tunica vaginalis. The old method of injection of iodine, he points out, causes a very painful inflammatory reaction, and, in common with the more recent treatment by incision and drainage, necessitates prolonged rest in bed, and does not insure freedom from relapse. The author makes a free incision into the sac, applies a three-per-cent. solution of carbolic acid to the surface of the exposed testicle and the whole of the inner surface of the tunica vaginalis, and stuffs the cavity with strips of iodoform gauze. After removal of the gauze, on the third or fourth day, the wound in the skin is closed by catgut sutures. Of eighteen cases treated by this method, the patients having been seen after intervals between eight months and five years from the date of operation, in one only was a relapse noted. This was a case of very large hydrocele in a man aged sixty-four years. —*British Medical Journal*, March 12, 1898.

#### OPERATIVE TREATMENT OF CONGENITAL UMBILICAL HERNIA IN THE NEW-BORN.

K. HEDMAN (*Finska Läkare-sällskapets Handlingar*, December, 1897) has operated upon a case of congenital umbilical hernia in a new-born infant. The hernia was of

the size of the little finger and contained liver and small intestine, which could be seen through the translucent sac wall. Attempts at taxis proved that the abdominal cavity could contain the herniated organs. The little patient, who weighed 3600 grammes, was put under chloroform and a needle with silk ligature was passed through the skin elevation, and the silk was gradually tightened as the contents were returned to the abdomen. The umbilical vessels in the sac wall were separately ligatured. The hernial pouch was then cut off, and the wound closed with silk sutures. The operation, which lasted an hour and a half, was successful, but was followed by the development of a bilateral inguinal hernia. —*British Medical Journal*, Jan. 29, 1898.

### Reviews.

THE DISEASES OF THE STOMACH. By William W. Van Valzah, A.M., M.D., and J. Douglas Nisbet, A.M., M.D. Illustrated. Philadelphia: W. B. Saunders, 1898.

This book is unusual in that it does not contain any distinct preface. It is divided into six sections, the first of which consists of an Introduction and Classification; the second with Diagnosis and Diagnostic Methods; and the third with Medication. Following this we find sections on Dynamic Affections of the Stomach, and Diseases of the Stomach Wall. The sixth section has the rather curious title of The Vicious Circles of the Stomach. This latter section is devoted to a consideration of the diseases of the stomach as they affect the other organs of digestion and assimilation, and with the diseases of these organs as they affect the stomach itself. This portion of the book might be the most interesting and original part of the volume, as it is so far as we know a part of gastrology, if we may use such a word, which has not as yet received the attention which it deserves. Unfortunately this part is not as exhaustive as we think its importance demands. On the other hand, the rest of the book gives evidence of the fact that its authors have had a large experience in the treatment of gastric disorders, and while it is not as exhaustive, in the sense of the consideration of general literature, as is the volume by Hemmeter which we have recently reviewed, or the volume of Ewald translated by Manges, it is, on the other hand, a mirror of the authors' personal experiences.

The exact position which this book will

take in American Medicine we cannot definitely determine. It is written in rather a conversational style, as if it might have been dictated to a stenographer, and we think might have been condensed with advantage. The most attractive thing about the volume to us is the knowledge that its authors are physicians of wide experience in the study of dietetics and the treatment of digestive disorders.

**REPORT ON BUBONIC PLAGUE.** Being a Report Based upon Observations on 939 Cases of Bubonic Plague Treated at the Municipal Hospital for Infectious Diseases at Arthur Road, Bombay, from September 24, 1896, to February 28, 1897. By Khan Bahadur N. H. Choksy. Reprinted by Authority.

Bombay: Printed at the "Times of India" Steam Press, 1897.

This is a monographic report covering fifty-seven large imperial pages and followed by a number of temperature charts illustrating the progress of the disease under discussion. It begins with a description of the hospital in which the cases were studied, and then goes on to a consideration of the manifestations of bubonic plague in connection with the various organs of the body. In doing this it deals with the diagnosis, the prognosis, and the treatment, and finally with the causes of death and the post-mortem appearances of the various organs. To those who are interested in this disease of the tropics this report will prove interesting and valuable reading. It is interesting to note on the thirteenth page of the report a table giving the comparative mortality of the disease in various occupations. The table shows that classes which are generally well fed have a far better chance of getting over the infection than those not similarly situated. Thus, for example, among domestic servants the mortality was 65.47 against 89.47 among the very poorest classes.

In regard to the situation of the bubonic lesion, out of 856 cases there were 275 femoral buboes, 200 femoro-inguinal buboes, 140 axillary buboes, and 106 inguinal buboes, the remaining cases being distributed well over the body. Curiously enough, double inguinal bubo and double cervical bubo were only met with in one case. The report does great credit to its author.

**DIE ZUCKERKRANKHEIT UND IHRE BEHANDLUNG.** Von Professor Dr. Carl von Noorden. Berlin: August Hirschwald, 1898.

Professor Von Noorden is perhaps the leading authority to-day concerning the disease diabetes mellitus. Certainly he is to be considered the leader if we confine our remarks to the medical profession upon the European

Continent, and his researches in connection with the pathology and etiology of this disease have made his name familiar to physicians everywhere. The object of the present volume is well described in its title, Diabetes Mellitus and its Treatment. In the earlier pages he discusses the physiology and general pathology of sugar transformations in the body, then goes on to a consideration of the theories concerning diabetes mellitus, its etiology, pathology, and complications; and it is in the part devoted to the complications which we have found the greatest interest. Other chapters then follow upon the Diagnosis and Prognosis, and finally in the seventh chapter there is an exhaustive *résumé* of the methods of treatment, both prophylactic, dietetic, hygienic, and medicinal. The volume is an exceedingly valuable one, although the article upon Diabetes contributed by Professor Von Noorden to the Twentieth Century Practice of Medicine contains most of the information which this monograph presents to us.

**DAY-DREAMS OF A DOCTOR.** By C. Barlow, M.D. Buffalo, New York: The Peter Paul Book Co., 1898.

The author of this book has provided his fellow practitioners with a semi-biographical sketch of his own life and that of other practitioners. Nine rather crude illustrations accompany the text, and some of them are so poor that the book would have been better without them. The book is written, the author tells us, because the medical profession as a useful and even indispensable factor to mankind has never been fully appreciated, and he endeavors to describe the peculiar life and work of the physician and the difficulties with which he has to contend, hoping that non-medical readers will peruse the pages quite as much as members of the profession.

**DISEASES OF WOMEN.** By George Ernest Herman, M.B. Lond., F.R.C.P. Illustrated. New York: William Wood & Company, 1898.

This work the author states he has written because it seemed to him that a book was wanted which should guide the student and practitioner to the diagnosis and right treatment of the diseases of women. The reviewer had thought that Skene, Kelly, Garrigues, Penrose, Madden, Dorland and a few other gynecologists partially supplied this need, but apparently this is a mistake.

Herman asserts that he has sought to state principles, and in applying those principles to recommend that which, having tried, he

knows to be good. In this relation it is interesting to note that the most reliable sign by which a diagnosis can be made between peritonitis and abdominal shock is the expression of the face. We are told "if the expression of the face is cheerful, hopeful, contented, and placid, the patient will do well, notwithstanding some apparently unfavorable symptoms."

The author has a happy rhetorical faculty which enables him to employ similes in a way that is quite his own; thus we read, "If the patient be losing copiously each month, it is like carrying coals to Newcastle to take blood from the womb."

The reviewer is pleasantly impressed with the individuality of the writer when in glancing over the volume he finds in large black print such titles as, "Importance of Reproductive Function to Women," "Value of Matthew Duncan's Teaching," "Subject of Next Five Chapters," and "Why Wrong Views Have Prevailed."

Although there are certain features in this work which seem somewhat unusual to the American mind, it may be said that Herman has compiled a work the woof and warp whereof is common sense, backed by a large experience.

AN AMERICAN TEXT-BOOK OF GENITO-URINARY DISEASES, SYPHILIS, AND DISEASES OF THE SKIN. Edited by L. Bolton Bangs, M.D., and W. A. Hardaway, A.M., M.D. Illustrated. Philadelphia: W. B. Saunders, 1898.

This long-heralded book, covering as it does genito-urinary diseases, syphilis, and diseases of the skin, excellently and sufficiently illustrated and edited by men of acknowledged eminence, is quite certain of a cordial reception at the hands of the profession.

Of the 1200 odd pages which comprise the volume, nearly two-thirds are devoted to genito-urinary surgery. It will be noted that the work is cooperative and that the collaboration of perhaps the leading authorities in special branches has been secured. The first chapter, by Thorndike, is devoted to a consideration of the Urine in Surgical Diseases of the Urinary Tract. This rather extensive subject has been admirably condensed and put into a serviceable form.

Farquhar Curtis and Lydston contribute extremely valuable sections on Diseases of the Penis and Diseases of the Male Urethra respectively.

Fuller has written upon Diseases of the Testicle and its Coverings, the Cord, and the

Seminal Vesicle, and in his characteristically forceful manner.

White and Wood have lucidly summarized Diseases of the Prostate, devoting especial attention, as might be expected, to castration as the treatment for hypertrophy.

Watson's article on Stone, as might be expected, is entirely satisfactory.

Fenger and Stanton have written a section on Diseases of the Ureter which would be sufficiently comprehensive for an encyclopedic work.

Pederson should be commended for the excellent manner in which he has handled the exceedingly difficult subject of Functional Disorders.

In the section devoted to Dermatology will be found chapters by Hardaway, Van Harlingen, Hartzell, Klotz, Winfield, Robinson, Cantrell, and other well known dermatologists.

Dr. Bangs is to be congratulated upon an extremely skilful piece of editorial work in molding the contributions of so many authors into a very symmetrical and evenly balanced volume. There is little doubt as to its success.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P. LOND.

Dr. Kingscote opened an interesting discussion at the Medical Society of London on the "Vagus Origin of Asthma and its Treatment." It would have been well if he had started with some exclusive definition of the term "asthma," which was somewhat loosely employed to cover both cardiac dyspnea and true spasmodic asthma. We would further question the substantial accuracy of his major premise that asthma is a symptom of vagus irritation, though it is true that asthma has been experimentally produced by stimulating the proximal end of the divided vagus. Far more probably it is due to some rapidly occurring congestion of the vessels leading to turgescence of the bronchial mucosa. Such a pathology would explain the frequent relationship of hay-fever and hay-asthma, the former being associated with congestion of the nasal, the latter with congestion of the bronchial, mucous membrane. Dr. Kingscote thinks that many cases of asthma are due to pressure of a dilated heart on the vagi as



they lie behind it against the bony spine, and has found relief for many cases by measures directed to reducing the size of the heart. He employed a modified Schott treatment combined with inhalation of oxygen in cases where such cardiac dilatation could be shown to exist. It is true that not long since Ortnier maintained, and with some show of reason, that in mitral stenosis the enlarged left auricle sometimes compressed the recurrent laryngeal, but there is really no evidence to show that the trunk of the vagus can be compressed by a generally enlarged heart. Maguire dissented from the theory on the ground that the thoracic viscera work under a negative pressure, which would tend *pro tanto* to diminish any pressure upon the vagus. Dyspnea of a more or less paroxysmal character is of course a familiar feature of great dilatation of the heart, but the dyspnea is not asthma and is not due to the pressure of the heart on the vagus. Iodide of potassium is commonly regarded as a valuable antispasmodic in the treatment of asthma, but far more probably its efficacy is due to liquefying the secretion, so that it is more readily expelled, and to its undoubted influence in allaying inflammations.

A few months ago we mentioned the successful treatment of several cases of inoperable sarcoma by Mansell Moullin with Coley's fluid, and now another case has been brought forward by Battle of a rather different character. This proved on examination of an excised portion to be a fibro-sarcoma with giant cells. The few notes of the case are of interest, as so many medical men are skeptical of the efficacy of this treatment. Four months before the man came under observation he noticed a lump under his right arm, which was soon followed by the appearance of other swellings. Shortly before admission to hospital a tumor formed over the right clavicle, and another over the right side of the sternum, while there were numerous enlarged glands in the axilla. The man had had syphilis six years previously, so was treated with iodide of potassium in large and increasing doses, but without improvement. At this stage examination of the growth determined its malignant character, and for two months half-minim doses of Coley's fluid were administered every other day, the iodide being maintained during the greater part of this period. The man had benefited materially in general health, and at the present time there were only two small swellings remaining. An unusual feature of the case was the absence of any reaction, the

temperature having been normal throughout. This case is an interesting supplement to the series already published both by Coley and Mansell Moullin. With all the accumulated evidence no reasonable being can doubt that certain sarcomata do completely disappear under this treatment, and a faithful record of all such cases would serve in time to establish the conditions under which we may look for success. At present we are completely in the dark in attempting to explain the undoubted disappearance of malignant tumors under various agencies. At the present moment I have under my care a patient whose abdomen was opened several years ago by a leading London surgeon. The upper part of the abdomen was found filled with a diffusely growing tumor, which presented all the features of malignancy; accordingly the incision was closed, and the patient sent back to the ward to die. From this time the tumor steadily diminished in size, and in the course of twelve months ceased to be palpable. He has now come under my care with jaundice, which seems to be due to some persistent obstruction, but there is no trace of a tumor, and one can only guess at the mechanism of the obstruction.

Mr. G. R. Turner records a case of neuralgia cured by injection of osmic acid into the nerve. The patient, a woman aged thirty-three, had suffered from severe neuralgia for two years, and had derived no relief from various forms of treatment. The pain was at first limited to the infraorbital nerve, but had subsequently spread to the other branches of the fifth nerve, and was accompanied by a discharge from the right nostril. A one-per-cent. aqueous solution of osmic acid was injected by a hypodermic syringe into the infraorbital nerve within the infraorbital canal. The injection was followed by pain and tenderness for some ten days, but as soon as this passed away the patient was quite free from pain. Mr. Turner suggested that the acid destroyed the nerve fibers, but it is questionable whether simple acupuncture might not have effected a similar result.

Surgeon-Captain Johnston communicates to the *British Medical Journal* of April 16 his experience in the treatment of tropical dysentery with magnesium sulphate. He had at first used Glauber's salt, but soon rejected this in favor of magnesium sulphate. His line of treatment is as follows: He first of all places the patient on an exclusively milk diet, and then gives two drachms of sulphate of magnesium every four hours, combined with aromatic sul-

phuric acid to prevent griping; the mixture is stopped as soon as the character of the stools indicates a free flow of bile, and a quarter to a half of a pure gallnut is given instead, well triturated with water, every four hours. Two or three days of this treatment usually suffices to cure the dysentery, permitting a return to soft diet. He suggests that the flow of bile performs an important function in intestinal antiseptis, and that the purgative action of the salt prevents putrefaction by flushing out the bowel. Hale White not long since obtained excellent results in the treatment of dysentery simply by rest in bed with large doses of bismuth.

In *The Lancet* of April 23 Lynn Thomas, of Cardiff, describes a simple method for controlling hemorrhage during disarticulation at the hip, which he had employed successfully. The method effects temporary compression of the femoral artery and vein immediately below Poupert's ligament, where the artery is superficial and easily felt, and well above the origin of the profunda femoris. He first accurately locates the femoral pulse, and then makes two stab punctures in the skin, one about an inch outside the pulse and another about two inches inside it. A two-eyed aneurism needle is then thrust from one stab to the other, keeping well behind the vessels, and two long, thick, silk ligatures are carried across on withdrawing the needle. A pad of Gamgee tissue is then rolled up and placed between the stabs, and the two silks are tied separately over the roll so as to compress the vessels. It is best simply to tie the first stage of the surgeon's knot, and then to clamp it with forceps, so that it can be readily retied if necessary when letting go after ligation of the visible blood-vessels on the face of the stump. Another method of controlling the vessels in an emergency is by means of a pair of Doyen's broad ligament forceps; only one puncture is made on the outer side of the femoral pulse, and one blade is thrust through this and behind the femoral vessels, when the forceps are clamped. The former method is one that deserves attention, as the necessary instruments form part of every surgeon's paraphernalia; but the latter is less likely to be serviceable, as it necessitates the use of an instrument which would not be at hand in the ordinary course of operation.

A few months ago we drew your attention to some observations of Dr. Clifford Beale on the administration of large doses of creosote in pulmonary phthisis. Drs. Squire and

Stanford Read have recently reported the results of a similar experience with guaiacol. Of their patients six took sixty minims, two took fifty minims, four took forty minims, six took thirty minims, ten took twenty minims, six took fifteen minims, and six took ten minims, three times a day after food. The drug was administered either in five-minim capsules or in emulsion with glycerin and tincture of orange, or in both ways simultaneously. Some patients preferred the one method, some the other, but the drug seemed to be much better tolerated when taken with a good draught of milk, which apparently diminishes the irritation of the mucous membrane that the drug is liable to excite. The initial dose was usually five minims, and five minims was added every other day to each dose until sixty minims was reached. In only one instance was there any evidence of serious digestive disturbances, and in this case the drug was again administered after a short respite and with success. Twenty-six of the cases had pulmonary cavities, and in all of these there was a marked diminution in the amount of expectoration, and in the fetor. Another effect of this liberal dosage was a steady lowering of the evening temperature. Most of the cases steadily increased in weight under the treatment. Cough did not appear to be relieved, but night sweating was markedly diminished, not infrequently to complete disappearance. At present no observations have been made on the number of bacilli in the sputum, but we are promised information on this point at a later date.

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#### PARIS LETTER.

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By A. R. TURNER, M.D. (PARIS).

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Among the theses presented at the Faculty of Medicine during the past year, one, by Dr. Mercier, on enteroclysis in new-born infants, is of practical value. The author of this work has followed the counsels of his instructor, Dr. Bonnaire, and he begins by giving us some important anatomical facts on the subject. The length of the small intestine in the new-born infant is, it seems, 260 centimeters, and that of the large intestine 55 centimeters. The latter holds from 100 to 200 cubic centimeters. One fact to be remembered is that the ileocæcal valve is insufficient, as Krauss has demonstrated. The following mode of procedure should be adopted: The apparatus consists of a glass

receptacle, which may be raised from 60 to 70 centimeters above the infant. It is connected by means of a rubber tube with a Nelaton's soft-rubber catheter, from 15 to 20 Charrière in number. The catheter is to be gently introduced into the rectum until some slight resistance is felt. It will then have penetrated about 15 centimeters. The child is placed on its right side, lying across the knees of the physician, and the catheter should be kept in place by the physician, who should prevent the liquid escaping from the rectum until it has been totally injected. About one-half a liter may be used, of either boiled water and boracic acid, or with sodium chloride, or of the following preparation:

Boiled water, 1000 Cc.;  
Borax, 10 Gm.;  
B-naphthol, 1 Gm.

The injection should be tepid, and once the 500 cubic centimeters has completely passed into the intestine, the liquid may be allowed to escape, either through the catheter or directly. This operation should be carried out twice daily until all morbid symptoms have vanished. It is to be highly recommended in the various intestinal disturbances in the new-born infant, for fetid stools and stools green in color, gastro-intestinal infection, and tympanites. It is neither a difficult nor dangerous method.

An article by Dr. Plesoianu, of Bucharest, published in the *Presse Médicale*, gives an account of the results obtained by the use of atropine in cases of dyspepsia attended by excess of hydrochloric acid. In it he notes what has been done in Russia by Drs. Nitshaiew and Panow with this drug. It has likewise been used in France by Bouveret, Mathieu, and Hayem. It should be remembered that this form of dyspepsia is accompanied not only by hypersecretion, but by pain, and as a necessary sequence by a certain degree of spasm, which may occur at the pylorus causing retention of food in the stomach. Atropine is consequently most useful in such cases, as it diminishes the secretions, decreases pain, and reduces the spasm. It acts much more energetically if applied locally, namely, by the mouth.

How shall it be administered? Bouveret and Devic gave it hypodermically, but did not obtain favorable results. Dr. Plesoianu recommends the following method:

Atropine sulphate, 1 centigramme;  
Distilled water, 10 Cc.

Ten drops of this solution are to be given

daily, divided into three doses. The dose may be increased in two to three days to twenty drops daily, provided no untoward symptoms develop, and then drop by drop the dose may be carried to fifty drops, and then reduced in the same way to twenty drops. Thus from one to two milligrammes are given daily.

Dr. Pouchet, professor of pharmacology at the Faculty of Medicine, recommends the following prescription:

Atropine, 1 centigramme;  
Glycerin (28-per-cent.), 3.5 Cc.;  
Distilled water, 1.3 Cc.;  
Alcohol (95-per-cent.), sufficient to make up 10 Cc.

Fifty drops of the above are equivalent to one milligramme of atropine.

The important factors in the method of treatment are exact doses and gradual increase. Attention should be given to the danger-signals of atropine poisoning, such as dilatation of the pupil, dryness of the throat, and flushing of the cheeks.

The Ninth International Congress of Hygiene has just been held at Madrid. It would have taken place last year, but for the disturbances in the Spanish colonies. As this has been the first occasion on which an international congress has been held in Madrid, the Government endeavored to make it a success. About 1600 medical members were present, and all European nations, with the exception of Russia and Denmark, were represented. Some official representatives were sent by the Government of the United States. One hundred and eleven delegates came from France.

The Congress was opened on the 10th of April in the great lecture room of the Palace of Museums and Libraries. Dr. Juan Calleja, Dean of the Madrid Faculty, made the opening speech, and in it he referred to the painful situation in which Spain found herself, and to the soldiers then engaged in warfare. He described the benefits to be derived from hygiene, and defended this science against the accusation of limiting the liberty of individuals. After a second speech by Dr. Amalio Gimeno, the Queen Regent and her son, Alfonso XIII, inaugurated the Exposition of Hygiene, and the principal delegates were presented to Her Majesty.

During the various sessions, bacteriology and the study of toxins and poisons seem to have occupied the greater part of the members' attention. Spronck, of Utrecht, communicated this fact, that by heating diphtheria

serum to 50° C. the various noxious elements were destroyed without injuring the properties of the serum.

Dr. Calmette, director of the Pasteur Institute at Lille, read an interesting report on immunization against the venom of serpents.

One of the most important communications was that of Dr. Chantemesse, of Paris, on the serotherapy of enteric fever. Dr. Chantemesse has prepared in the usual manner a vaccinating serum for animals, having, however, no action on the disease once declared. The toxin of typhoid fever is elusive, and Dr. Chantemesse has not succeeded in discovering it in the ordinary media used for the cultivation of microbes. By using a maceration of spleen and bone-marrow with a small quantity of defibrinated human blood an active toxin was obtained. More recently he has used spleen digested by pepsin obtained from pigs. The horse has been used at the Pasteur Institute in Paris as a means of producing an antityphoidic serum. Two to three years were required to do so, as the toxin remains a long time in the blood of the horse. If this serum be used on guinea-pigs and rabbits, they resist subsequent injections of the toxin of enteric fever; and if the bacilli be injected under the skin, some hours later no free bacteria are found, but all are contained within the white blood-corpuscles, and in polynuclear leucocytes they are transformed into small spherical bodies.

In a last series of experiments Dr. Chantemesse was enabled to establish the antitoxic properties of his serum. He noted that the doses must be increased in proportion to the time since inoculation. Tried on patients suffering from enteric fever, Dr. Chantemesse finds that the serum lowers the temperature, ameliorates the nervous symptoms, and hastens recovery.

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#### BERLIN LETTER.

BY JAMES J. WALSH, PH.D., M.D.

The therapeutic features of the recent German Congress for Internal Medicine at Wiesbaden will, I am sure, be interesting to American doctors. Though most of the papers read were eminently practical, and most of them contained more than a passing reference to therapy, while two of the subjects out of three selected for discussion were the treatment of diabetes and of intestinal autointoxication, yet very little was said of drugs.

In his paper on the clinical teaching of medicine, Professor von Ziemssen, of Munich, insisted that much more attention than formerly would have to be given to the physical therapeutic methods, and that every clinic would have to have in connection with it departments in which electrotherapy, balneotherapy, dietotherapy, massage and gymnastic and movement therapy would be practically taught.

Professors Quincke (Kiel) and Jürgenson (Tübingen) insisted that the present teaching of therapeutics was on the whole too exclusively pharmacological, and that time spent in learning the physiological effects and uses and methods of prescribing a number of drugs that would be rarely if ever used might be profitably devoted to physical therapeutic methods. During the discussion it was pointed out that even the principles of climatology might be practically taught in a clinic, by calling the attention of students to the ailments that characterize certain seasons of the year, and the symptoms that develop in patients in consequence of meteorological and barometric changes.

In the treatment of diabetes Professor Leo outlined the method which is now generally followed by clinicians in Europe, especially by all such as believe with Naunyn, of Strasburg, that even lighter cases may gradually pass into the severer forms. Not all the carbohydrates are withdrawn, but so much allowed as keeps the urine sugars free or practically so—*i.e.*, under one-half. Then three or four times a year, for intervals of two or three weeks at a time, absolutely all carbohydrates are interdicted. It is considered that the perfect rest of the sugar metabolic faculty for a time enables it to recuperate better than by allowing only slight demands to be made on it, but persistently. In the matter of prophylaxis Professor Leo's observations as to the production of mellituria in dogs, when fermenting solutions of sugar were fed them, seem to be considered of importance here in Germany, where diabetes is undoubtedly on the increase, and where according to many this increase bears a constant relation to the increasing amount of fermented liquors that are used.

As to specific treatment, Professor Leo has been employing with certain good results in animals, and a modicum of success in human patients, compressed dried yeast; the idea seemingly being to lead to the conversion of ordinary carbohydrates into a chemical

modification which the system can make use of, though it cannot use sugar straight. It may be mentioned here in passing that in discussing the treatment of intestinal auto-intoxication Professor Quincke, of Kiel, reported that he had had good results with yeast administered in small quantities by the mouth. He considered that the presence of the yeast cells led to chemical changes in the intestinal contents, which caused the splitting up of dangerous toxins into innocuous or unabsorbable compounds. These two attempts to use biological processes within the body for therapeutic purposes seem worthy of note as pioneer work.

Professor von Jaksch views the treatment of diabetes in a new light. He considers that in a few years we will think it as foolish to devote all our attention in diabetes to the lessening of the sugar in the urine as we do now to give antipyretics in infectious diseases to keep fever down, though every one was doing it a few years ago. Fever and glycosuria are both but symptoms. The important thing is the general condition of the patient; that suffers because the patient is not able to make use of the carbohydrates in the ordinary forms. Of levulose, however, he can make much more use than of dextrose. It is possible that there is a carbohydrate for which even diabetics retain the metabolic faculty. A series of experiments with various of the sugar series has not given him the hoped for result, though arabinose-methyl pentose proves even more available for diabetics than levulose, so that there is encouragement to proceed with this line of investigation.

It seems to be agreed that saccharin is not the harmless, indifferent, sweetening material it has been considered to be, but a rather powerful drug. In fermentative enteritis Boas has gotten good results from it as an antiferment. Von Jaksch thinks this antiferment action interferes with digestion and is the cause of the digestive troubles that so often occur in diabetes, when saccharin is in any way freely used.

Professor von Leube (Würzburg), following the suggestion of Professor Minkowski of Strasburg, is trying pancreatic extract, though he is not yet able to report definitely as to results. Minkowski found that the artificial diabetes of dogs, produced by removal of the pancreas, could be relieved by the administration of pancreas extract.

Subcutaneous injections of sugar have been tried by several clinics. As much as 100

grammes of sugar may be given at an injection without producing glycosuria. The results are not very encouraging, however, and the points of injection become infiltrated and easily suppurate, besides causing a great deal of pain. The discussion brought out the fact that subcutaneous injections of olive oil as nutritive material in cancer or stricture of the esophagus or pylorus is now in use in a number of clinics and is giving very satisfactory results.

For intestinal autointoxication very little confidence is placed in so-called intestinal disinfectants. If the absorption of toxins is taking place from the stomach, as in dilatation of the stomach, then that organ is to be washed out; if from the intestines, a prompt purgative is to be employed; while in chronic cases flushing of the colon is also considered desirable. Dr. Boas called attention to the fact that in many of these cases of acute intestinal autointoxication there is great reduction in the quantity of urine passed, sometimes almost complete suppression of urine supervening. In such cases calomel does good, not so much because of any intestinal disinfectant action, but because of the diuresis it produces. In every case he thought immediate steps should be taken to secure prompt diuretic action, for here lay the greatest danger.

For the treatment of the long-standing cases of chlorosis, that so often prove obstinate to all treatment and relapse so readily, even after ordinary therapeutic measures seem to have accomplished some good, hot baths were suggested as a remedy that seems to excite the blood-making organs better than anything else. They are of special service in the cases complicated by an intense feeling of muscular tiredness—a feeling that is really due to muscular exhaustion, not brought on by exertion, but by lowered nutrition from the impoverished blood. How restful in the ordinary tired states are warm baths is well and popularly known. Often in these long-standing cases of chlorosis there is almost a painful sense of fatigue in the muscles, and this is promptly relieved.

Hot baths increase the excretion of the carbon compounds in the urine. This is taken as an indication that sluggish metabolic processes, especially in the muscular system, have been excited into greater activity. An increase in the alkalescence of the blood is also demonstrable, and it is this that is thought to have a tonic effect upon the blood-making organs and to increase the

nutriment carrying power of the blood by setting it in a state of more stable equilibrium.

The hot baths are given at a temperature as high as the patients can bear them—at least 32° Reaumur (104° Fahrenheit)—and the patients are made to sweat plentifully during the bath. A towel wrung out in cold water may be placed on the head to avoid unpleasant cerebral sensations from circulatory disturbance within the cranium, but this is seldom necessary. A bath is given three times a week for three or four weeks, when the improvement will be such as to make further exact hydrotherapy unnecessary. Each bath lasts one-half to three-quarters of an hour and is followed by a gentle cold douche of 75° to 80° Fahrenheit, in order to avoid after sweating, which would be exhausting.

The discussion brought out the fact that a number of clinicians are now using venesection for very obstinate cases of chlorosis, and with excellent results. It is thought to have two effects: first, to produce an immediate intense reaction upon the blood-making organs, and second, dilute the toxins in the circulation, which are at once the cause and effect of the sluggish cellular metabolism and of absorption, as so many believe, of unsuitably prepared albumoses from the intestinal tract in the constipation that is so usually an accompaniment of the disease.

A little startling in the line of therapeutics is the suggestion of Dr. Jacob, of Leyden's clinic, in Berlin. He proposes in disease of the central nervous system to inject drugs directly into the subdural space. The absolute security with which a lumbar puncture may now be done indicated that some further step in this line would come. The Quincke puncture, though expected to be of great use in therapeutics, has only proved of service in meningitis serosa, and simple meningitis not due to bacteria, though there are some wonderful cures reported in extremely threatening cases. Jacob has been able to inject 150 cubic centimeters of various solutions of drugs into the spinal canal of animals without causing symptoms. In two cases in human beings a solution of iodide of potassium has been so injected without any untoward results, though the cases were too far gone to hope for anything but passing amelioration of symptoms.

Another bit of therapeutics of the future perhaps, though as yet it has not gotten beyond the test tubes, is also reported from

Leyden's clinic. Blumenthal has found in the liver and pancreas glycolytic substances, compounds that so act on sugar as to put it into a state of chemically unstable equilibrium, in which form it is thought it will be readily absorbed even by diabetics. But this needs confirmation in clinical experience.

#### *APOCYNUM CANNABINUM.*

NEW ORLEANS, April 27, 1898.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I take the liberty of sending to you, in your capacity as Editor of the THERAPEUTIC GAZETTE, a monograph of mine entitled "Treatment of Dropsy." This article was written nearly twenty years ago to induce the profession to abandon the routine tapping, purging, etc., in such cases. The one remedy I recommended was *Apocynum Cannabinum*. On page 253 (April 15, 1898) of the THERAPEUTIC GAZETTE you are pleased to place this remedy under the caption of "Therapeutic Progress of 1897," the remedy having been favorably mentioned at the meeting in Montreal last year. Knowing your fairness in all literary matters, I thought you would be glad to see that a citizen of the United States had been the first to call attention seriously to this very valuable remedy. My cases reported are of record in the Charity Hospital. I used the apocynum before I knew its botanical name, and not until I had decided to make public my observations did I find out the exact name of my weed, which grows abundantly in certain parts of the South. By reading carefully what I wrote nearly twenty years ago, you will find out that nothing new has been discovered in reference to this remedy. I have persistently used it ever since, and never in *one* instance have I had to resort to tapping.

I hope you will, through the columns of the GAZETTE, give credit to whom credit is due. I am writing to Dr. Sajous on the same subject. He, on page 33, in his January, 1898, journal, quotes from Dr. A. A. Woodhull's paper (*British Medical Journal*, Dec. 11, 1897) some things about the apocynum as if Dr. Woodhull had discovered it. Thanking you in advance, I remain,

Yours truly,

T. S. DABNEY, M.D.

[In publishing the abstract referred to above there was no intention except to call attention to apocynum. We are very glad to give Dr. Dabney the credit he deserves.—Ed.]







Cocks' heads showing coloration of comb and wattles produced by Ergot.  
The central figure shows the normal condition.



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## Original Communications.

### ERGOT ASEPTIC.\*

BY E. M. HOUGHTON, PH.C., M.D.,

Lecturer on Experimental Pharmacology, Detroit College of Medicine; Member of the American Medical Association, etc.

Many attempts have been made to isolate the active constituents of ergot, or to produce a satisfactory preparation of the drug for hypodermic administration. Owing to the fact that pharmacologists thus far have not been able to agree upon what should be con-

sidered the active constituents of ergot, and the great difficulty of isolating the chemical constituents already studied, it seemed to me best to endeavor to obtain a preparation which would represent as nearly as possible the activity of prime samples of ergot, rather than to attempt to obtain any of the constituents of the drug in pure form.

It is not necessary to mention the importance of having a reliable preparation of ergot for hypodermic administration always on hand when prompt action of the drug is desired. Especially desirable is this in obstetric practise, since it so frequently happens that at the critical moment the patient is vomiting, or the stomach is otherwise not

\*Read before the Michigan State Medical Society, Detroit, May 6, 1898.

in condition to absorb the drug when administered by the mouth.

It is a well known fact that much of the crude ergot, and its preparations, on the market vary very greatly in strength, or may be entirely inert; consequently it seemed advisable to adopt some method of physiological assay. Having this in view, various methods of determining from physiological experiments the real activity possessed by ergot were investigated. I finally decided to adopt the reaction manifested in roosters when fed with this drug. From times prehistoric it has been observed that in fowls, swine, and other animals, as well as man, fed with ergotized rye, or with bread prepared from the flour of such grain, for a considerable length of time, the poisonous action of the fungus is frequently manifested by gangrene and sloughing of the peripheral parts, as the comb of fowls, ears of hogs, and ears, nose, fingers and toes of man. Two particular types of ergot poisoning have been observed in man, viz., *ergotismus gangrenosus* and *ergotismus spasmodicus*. Kobert, and his pupil Grünfeld, were the first to employ the method of feeding ergot to roosters in order to determine the activity of the crude drug, or of the products isolated from it. However, these investigators employed the reaction only for experimental purposes. It seemed to me, after careful investigation, that it would be advisable, and of vastly more importance to medical practitioners, to employ this reaction not only as a check on experimental work, but as a means for determining the active properties of the crude ergot before its manufacture into the various pharmaceutical preparations, and to test the completed preparations by the same means. With this end in view I have examined during the past three years several hundred samples of the crude drug as it appeared upon the American market, and finished preparations taken from the druggists' shelves. Many of the samples were almost inert, while the remainder varied greatly in activity. Indeed, not long since I had occasion to reject several samples of the drug which were forwarded to me for examination, the aggregate quantity represented by them amounting to over 20,000 pounds. This method of testing was employed also by Jacobi last year in an elaborate experimental research. My experience leads me to conclude that not more than from fifty to seventy-five per cent. of the drug, or its preparations, offered for sale is suitable for medicinal use.

In taking up the study of ergot aseptic I shall present the views of some of the leading pharmacologists who have made extended researches on ergot. It has been shown that the fungus contains acid salts of potassium, sodium, etc., and various organic constituents, as coloring matter, fats, methylamine, etc. These several constituents are of little importance if contained in preparations designed for internal administration, since none of them are physiologically active, but they may be a source of irritation when injected subcutaneously. Pharmacologists in general agree that ergot contains at least three active constituents, viz., ergotinic acid, sphacelinic acid, and cornutin. Ergotinic acid (the impure form of which is known as sclerotinic or sclerotic acid, and combined with mannin is known as scleromuscine) is a glucosidal body, readily soluble in water but almost insoluble in alcohol; it decomposes easily under bacterial or chemical influences. Consequently, when taken internally in the various preparations of the drug it is quickly split up by the processes of digestion, or by bacteria contained in the alimentary canal. Dragendorff and Podwyssotzki were the first to call attention to this constituent, and claimed, because they found that it stopped the laid-bare frog's heart in diastole, that it was the active constituent to be depended upon for the production of ergot effects. The later work of Kobert, his pupil Grünfeld, and others, has shown that it has no influence on the uterus, not even when gravid. Since it is decomposed and not absorbed from the alimentary canal, except possibly in the minutest quantities, it is not objectionable when contained in preparations for oral administration, but is to be especially guarded against in fluids designed for hypodermic use, since when administered in this manner it is slowly absorbed into the system—in fact (according to Kobert), it acts as a long-irritating foreign body, frequently resulting in abscess. As much as three per cent. of sclerotic acid may be obtained from some of the preparations of ergot on the market. I will add several volumes of strong alcohol to this fluid extract of ergot, and you can better appreciate this fact, since the voluminous precipitate thrown down consists almost entirely of this constituent. When subcutaneously injected in a very dilute condition, sufficient quantities may be absorbed to produce the general symptoms noted when the drug is introduced directly into the intravenous system—that is, the irritability of

the central nervous system is lessened. The action of ergotinic acid on the spinal cord is manifested by paresis, weakness of the limbs, etc., large doses producing complete motor and finally sensory paralysis. Blood-pressure is also lowered, from the action of the acid on the vasomotor centers, while its sedative action on the brain is manifested by stupor.

I have repeatedly confirmed these statements by subcutaneous and internal administration of the ergotinic acid to roosters, and to pregnant animals in various stages of gestation.

Ergot affords one of the many instances where, possibly by a wise provision of Nature, a crude drug contains active constituents having antagonistic actions. Sphacelinic acid, which is also known by the names of sphacelotoxin and sphacmotoxin, is a resinous substance almost entirely insoluble in water, but readily soluble in alcohol. It has not been obtained in a pure condition, as it is very easily decomposed by chemical manipulations. It is held that this substance is responsible for the ergotismus gangrenosus. This constituent was first obtained by Kobert, and later extensively studied by Grünfeld, who concluded that while it had marked pharmacologic properties it could not be used therapeutically. This opinion, however, was disputed last year by Jacobi, who holds that the active constituent of ergot is the nitrogen-free resin, sphacelotoxin, which occurs in the drug in combination with basic substances, especially with secalin and ergo-chrysin. Jacobi carried out many extensive experiments upon fowls and pregnant animals, the results of which seem to prove that his claims are correct. Grünfeld found that the gangrene of the peripheral parts caused by large doses of sphacelinic acid is due partially to a local action upon the walls of the arterioles, and partially to a direct action on the vasomotor centers, resulting in a narrowing of the caliber of the vessels, followed by the pouring out of a hyaline substance, this condition finally terminating in complete paralysis of the walls of the arterioles; peristalsis of the intestine is markedly increased, ulceration of its walls may occur, and extravasations into the mesentery may also be noted. Sphacelinic acid, because of its direct stimulant action upon the motor centers of the central nervous system, and its local action on the vessels, produces a marked rise in blood-pressure. Also from its action on the motor centers and its local

action on unstriated muscle fiber, it produces tonic contractions of the uterus.

The third constituent, the alkaloid cornutin, is believed by Kobert to be the active constituent desired. But this seems scarcely possible, since the best crude drug contains only a fraction of one per cent. of it. Tanret held cornutin to be a decomposition product of ergotin, while Jacobi, as already mentioned, believes that we should ascribe the therapeutic value of the drug to the sphacelinic acid contained. Jacobi, however, also thinks that cornutin may in part explain the oxytocic action of ergot. Cornutin possesses very weak basic properties. Like sphacelinic acid, it is only extracted by an alcoholic menstruum. Its salts are somewhat soluble in water. Cornutin is said to be the cause of ergotismus spasmodicus. Mainly because of its irritation upon the medulla, it produces in mammals increased blood-pressure, slowing of the pulse, etc., large doses resulting in tetanic convulsions. However, very small doses, as claimed by Kobert, produce, through action on the motor centers of the lumbar cord, strong clonic contractions of the gravid uterus, simulating those observed during the normal act of parturition. Especially do these results occur when cornutin is administered subcutaneously.

In general we may conclude from what has already been said that the desired action of ergot is due to the pharmacologic properties of the contained sphacelinic acid and cornutin, or their salts. It appears well-nigh impossible to separate these constituents, since the solubilities of both are much alike, but for practical purposes this is of little importance, as they have much the same physiologic action and can be readily separated from the sclerotic acid, which has an opposite action.

With the purpose of obtaining a preparation of ergot which should contain a large percentage of sphacelinic acid and cornutin and as small quantities of sclerotic acid and inert substances as possible, the following experimental work was carried out:

The crude drug employed was carefully standardized by feeding to cocks and noting the reaction manifested by the comb and wattles. The selected drug was ground and divided into a large number of small parcels, which were then percolated with various solvents. The several extracts obtained, and the exhausted drug left in the percolators, were each tested by feeding to fowls, and the results compared. The men-

struum found to produce an extract having the most marked physiologic properties was selected. This menstruum, however, extracts a certain amount of sclerotic acid, which, while it is not harmful (as already stated) for internal administration, was removed from the preparation designed for subcutaneous injection. Since the free acids and the acid salts contained in a fluid extract of the drug are very irritating when administered hypodermically, they were neutralized. The fluid was finally concentrated until one part represented two parts of the crude drug. The finished product was found to be almost entirely non-irritating, but would not keep, owing to the ready decomposition of its constituents. Instead of using alcohol or seeking out some antiseptic which would preserve the fluid, it seemed much more desirable to have the fluid placed in containers holding sufficient for one injection, the filled and sealed containers to be then sterilized. The results were entirely satisfactory. The completed ergot aseptic consists, therefore, of a non-alcoholic fluid preparation of ergot from which the inert substances and ergotinic acid have been removed. The irritating acids and acid salts have been neutralized, the finished product appearing in small glass bulbs, each holding sufficient for one injection. The bulbs, after being filled, and the necks sealed, are then rendered completely sterile by fractional steam sterilization. It is now over a year since the bulbs which I have here were filled, and you see the contained fluid is even now perfectly clear and transparent. A recent test has shown that the contained fluid has retained its physiologic properties apparently unimpaired.

Of far more importance to the physician than the chemic and physical properties is its physiologic action. I have carried out many experiments on various kinds of animals—dogs, cats, rabbits, etc.—which show conclusively that ergot aseptic has the active properties of sphacelinic acid and cornutin. Blood-pressure is raised; peristalsis of the intestine is increased when intravenous injections are administered to dogs and rabbits; gangrene of peripheral parts occurs when it is given to cocks, and expulsion of the contents of the uterus follows when ergot aseptic is administered subcutaneously or internally in proper doses, to pregnant animals at various periods of gestation.

Thus far the clinical results reported by those who have employed it in practise indicate that it is non-irritating and produces

prompt and efficient results. Since I am not engaged in obstetric practise I shall leave the final decision of the therapeutic value of ergot aseptic in the hands of the medical profession at large.

However, before closing I find it incumbent upon myself to again state that it is my opinion after several years' careful testing of ergot by pharmacologic methods, that crude ergot, or its pharmaceutical preparations, should never be employed for medicinal purposes except they be carefully tested for physiologic properties, as the chemist is unable to tell whether this drug and its preparations are active or inert. And for the purpose of testing the crude drug ergot, or any of its pharmaceutical preparations, the reaction noticed in roosters seems to be the most reliable and most readily carried out. The blackened and gangrenous appearances produced in the comb and wattles of fowls is well shown in the accompanying colored plate, which is an exact reproduction of an oil painting made from life.

To my colleague, Mr. J. M. Francis, is due the credit of having overcome the pharmaceutical difficulties in the way of manufacturing ergot aseptic.

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#### THE TREATMENT OF HEMORRHAGE IN TYPHOID FEVER.

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By H. G. McCORMICK, M.D.,  
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In the treatment of hemorrhage in typhoid fever it has long been taught that opium, morphine and acetate of lead were the remedies to be given in such doses as to paralyze the bowel and bind up their contents in such a way that no movements of the bowels could possibly take place. This treatment was advocated on the theory that the opium would paralyze the vasomotor nerves of the alimentary canal and destroy the peristaltic movement, putting the bowel, as it were, in a splint. The acetate of lead was probably given for the reason (if those who advocated it reasoned) of its astringent effect to bind up what secretions, if any, were acting after the opium had gotten in its work. This plan of treatment was generally pursued in the treatment of all bowel troubles in which diarrhea was present, when the medical profession treated symptoms, rather than diseases—when pathology was almost unknown—before bacteriology had been conceived—when the physiological action of drugs was a myth.

Yet many of the so-called modern works of practise have kept copying these same antiquated plans of treatment of this class of diseases. It certainly should be more respected for its age than for its logic. Emerson says: "Of no use are the men who study to do exactly as was done before, who can never understand that to-day is a new day."

Opium does control peristaltic action, and acetate of lead does bind up the secretions, but do you want to produce these conditions in a case of hemorrhage in typhoid fever? What conditions are present when a hemorrhage of sufficient amount to require treatment has occurred? The muscles are relaxed, the heart's action is weakened, and the whole body is depressed. Is it likely, when every other muscle and set of muscles have lost their tone, and from want of nourishment have lost their power of contraction, that the muscular fibers of the intestines have not suffered from the same cause? From the explicit instructions given to put the bowel at rest with opium one would suppose that all the muscular force of the body had suddenly been concentrated in the muscles of the bowel when a hemorrhage occurs in that part of the body. A little thought will convince you that after a hemorrhage the peristaltic action of the bowel is suspended or abolished in proportion to the amount of blood lost and the effect this has produced upon the body as a whole. Is there any necessity for the giving of a drug to overcome a condition which does not exist? In addition to opium not being of any use, it does positive harm. It dries up every secretion of the alimentary canal from the mouth to the anus. The secretion from the liver which is necessary to carry on the process of digestion, and which furnishes to the bowel the best antiseptic, is suppressed; the secretions from the whole glandular system along the route have been dried up; and you must, of necessity, have decomposition of the contents of the bowel—forming gas and poisonous products, which are absorbed into the system, adding to the already serious trouble new complications to combat.

Tympanites is never a favorable symptom in typhoid fever, and this is especially true in cases where hemorrhages have occurred. The hemorrhage was caused by the rupture of a blood-vessel in an ulcer of Peyer's gland. Will you not add to the probability of another hemorrhage by distending that bowel with gas? and if the ulceration has any depth, will you not further add to the danger of the

case by putting sufficient pressure on the bowel to cause perforation and death?

After a hemorrhage has taken place the blood as a rule is not all expelled and part remains in the colon or at the ileocaecal valve. Blood is a fruitful soil for the development of bacterial growth, and if allowed to remain aids in the further development of the poison. Do you think any harm will come to the patient by these clots being washed out? Instead of giving opium or any other drug to bind up the bowels and secretions, I have been in the habit for the past few years of following an entirely opposite course. I give something to move the bowels, generally a saline, and wash out the colon with ice-water. By this plan I clear out the alimentary canal, carry off the clots of blood and whatever other substance there may be—relax all tension upon the bowel—and I have not had much secondary hemorrhage to contend with.

The bowels should always be kept open in typhoid fever. In a discussion of this subject at the last meeting of the American Medical Association, a very prominent physician made the statement on the floor that constipation in typhoid fever was a good thing, and that cases with constipation did better than those with diarrhea. Now I have had a fairly wide experience, yet I have never come across any disease in which constipation was a good condition; and in conversation with a number of physicians who have seen disease in about all its forms and names, not one of them has been able to give me the name of a single disease in which they were willing to say that constipation was a condition to be sought. I have gone to some trouble to consult the works on practise that I have been able to secure, and yet I have not found a single disease in which they were willing to say that constipation was the end to be secured in order that a cure might be effected. That there are mild cases of typhoid fever with constipation any physician who has seen much of this disease will be ready to admit. But are they mild because they have constipation? Is this the cause for their not being severe? Is it not rather a fact that, being mild, there is not a sufficient amount of pathological change taking place in the bowel to cause a diarrhea, and would not these cases be more mild by the bowels being kept open? Are hardened feces a good application to an inflamed and ulcerated bowel? Is there a physician who has a wild enough imagination to make himself believe that

hardened feces are a "God-send" to an inflamed and ulcerated bowel? When will the teaching of such nonsense as this cease?

By the method I have suggested the bowel is kept clean—clean as it can be by the means at our command; the bowel and ulcer are relaxed, no undue pressure is placed upon it; the bowel is at rest, for the hemorrhage has produced this effect, and the patient is given a fair chance to recover.

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*THE STUDY AND TREATMENT OF SOME  
SERIOUS DISEASES AND THEIR  
COMPLICATIONS.\**

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BY H. A. HARE, M.D.,

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Philadelphia.

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The most difficult task for an inventor is said to be the discovery of what to invent, and I confess that the most difficult part of my task has been to find a topic or topics which would prove of interest to you. I have decided, however, that the consideration of several subjects will not be inappropriate. None of them will be novel, but all of them have a direct bearing on the daily needs of the physician.

The first of these is the procedure to which has been given the name "washing of the blood." I have practised this method so often with success that I feel it is not resorted to with the frequency which its power for good deserves, and its harmlessness and wide scope for application make it a valuable therapeutic aid. The present plan has been evolved by a gradual process till its usefulness is assured, and its technique is so simple that even the most timid may resort to it with confidence. It may be divided into two types—that in which the blood is washed by the direct injection of a normal saline solution into the blood-vessels, and that in which it is given subcutaneously and absorbed from the tissues by the circulatory system. It is at once evident that the latter method is necessarily much more slow in its effects and much easier in performance than is that of intravenous injection; and again, that it is devoid of any danger which may exist in regard to the injection of an air embolus or of some foreign body capable of plugging a blood-vessel situated perhaps in some vital area; or again, of the introduction into the

blood stream of some material capable of causing infection.

On the other hand, there are certain conditions in which hypodermoclysis is manifestly of no avail, as for example where the system is in such a state of collapse that the processes of absorption do not go on, or where there is general anasarca, or again where the necessity for relief is immediate or pressing. Let me first, however, speak of the states in which I believe these injections are needed. They have been most highly praised by French clinicians in the treatment of the severe toxic symptoms coming on early or late in the course of the acute infectious diseases such as scarlet fever and similar ailments. In these I have not employed them because I have not met with cases needing this plan of treatment. They are also highly commended in the treatment of the toxemias of sepsis as the result of injuries or surgical interference. Here again I cannot speak of their value from the standpoint of actual experience, because I am not in the habit of seeing surgical cases in these states, although I have employed intravenous injections in two cases to which I was called in consultation long after the surgeons had decided that the condition of the patient was hopeless. The first of these was a man suffering from dry gangrene of the toes of one foot, at first thought to be due to Raynaud's disease, then decided to be a senile gangrene, and finally found to be associated with diabetes mellitus. In this instance the patient developed simultaneously a gradually deepening coma with a rapid spread of the gangrenous process to the calf of the leg, where it was a moist gangrene. Within twenty-four hours after the coma began it was so manifest that recovery was impossible with the use of ordinary measures that I decided to do an intravenous injection of normal saline solution, and did so in the ward by the light of a candle and with no better apparatus than an ordinary rubber fountain syringe and a glass tube to fit into the vein. The patient speedily developed a severe rigor, then broke out into a profuse sweat, and when I left him immediately after the operation I told the family he would not survive the night, as his situation seemed most critical. The next noon I was surprised to find him entirely conscious, free from pain, and able to state that he felt very well. The coma, however, returned in the next twenty-four hours; the intravenous injection was not repeated, and he died shortly after. As the patient had become comatose

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\* Part of the address in Medicine before the Nebraska State Medical Society, Omaha, June, 1898.

primarily in the absence of his wife and family, his return to consciousness was considered by them little short of miraculous, and they were grateful for his ability to give final directions to them.

The second case I have already reported elsewhere. It was that of one of the most noted scientists this country has produced, who after years of prostatic trouble finally died of septicemia arising in his bladder and kidneys. When I saw him in consultation he was manifestly a dying man, and so ill that any surgical interference was impossible. As the only chance of possible temporary arrest of the downward progress of the case an injection was agreed to. Temporary improvement followed its use, but he speedily sank and died.

The most successful case which I have had from the use of this treatment in uremic coma is that of the father of a physician who called me in consultation when partial coma had lasted for over a week. The urine was very scanty, albuminous, and passed involuntarily. The breathing was stertorous and labored; the face dusky and cyanotic. His condition was so grave that all hope of his recovery had been given up, the more so as he had been refused life insurance ten years before because of renal disease. I advised intravenous injection. It was accepted as the only chance, but with the grave doubt of its doing any good. Immediately after the operation the patient had a severe rigor, partly due to the fact that the fluid injected was not warm enough. A profuse sweat now began, and he speedily became conscious. He has entirely recovered in that this occurred nearly eighteen months ago, and he has attended to his affairs since then. The patient seemed to every one who saw him as if raised from the dead.

Any one inclined to be critical may make objections to attributing the saving of this patient's life to this measure, first, because we sometimes see uremic patients make surprising recoveries, and second, because it is undoubtedly a fact that no means we can use can restore a damaged kidney. The reply to this is that damaged kidneys sometimes break down after exposure or other cause, and the patient becomes uremic and dies when if his life could be prolonged the remaining healthy renal cells would recover from their acute disorder to perform their function properly.

I could cite other instances of a character somewhat like that just detailed, but

time forbids. I can only add that in one particular case a man who came under my care semi-conscious after the injection became entirely clear mentally, and volunteered the fact that he was free from headache for the first time in six weeks. Another man found unconscious in his bedroom in a hotel and admitted to my wards absolutely comatose recovered sufficiently after the injection to tell his name and give his brother's name and address before again becoming comatose. On the other hand, I have had cases in which the treatment failed in the sense that no marked improvement occurred, but in every case in which I have used the method there has been some sign of mental clearing up.

I have used the method in one case of diabetic coma without result. The deaths under its use have been numerous simply because the condition of the patient in severe uremia or other intoxication is necessarily one which is followed by fatal results, and in the presence of such hopeless conditions a few lives saved, if only for a short time, is worthy of careful consideration. Increasing experience with this method of intravenous injection has led me to the following conclusions as to the treatment of patients suffering from uremic attacks:

Use hypodermoclysis provided the symptoms are not pressing and there is no trouble with absorption because of edema; when the danger is pressing, or edema is present even in a very slight degree, use intravenous injection.

In a large proportion of cases the patient should be bled, particularly if nervous excitement or convulsions are present or threatened, because this will relieve cerebral congestion, aid in the elimination of toxins, and aid in the absorption of the fluid from the subcutaneous tissues; or if intravenous injections are used, it will make room, so to speak, for the artificial serum. I believe this is of importance, unless the circulation is evidently very feeble from profound debility and anemia.

Again, it is of great importance to aid sweating by the use of the hot pack, using care that heat-stroke is not produced; but this again should not be used unless the patient fails to sweat, nor if he has a feeble heart.

Finally the saline solution should be carefully prepared, and if possible common salt alone should not be employed. The following formula suggested by Locke, of Boston, is prepared in concentrated sterile

form by Parke, Davis & Co., so that one ounce added to a quart of distilled and sterile water makes a solution which will at once fill the vessels, wash the blood, and support the circulation:

Calcium chloride, 0.25 Gm.;  
Potassium chloride, 0.1 Gm.;  
Sodium chloride, 9.0 Gm.;  
Sterilized, distilled or tap water, sufficient to make 1 liter.

The apparatus I have used is made up as follows: A glass container, such as is used for irrigation purposes in antiseptic surgery, is set in a frame, in order that it may stand on a table rather than be hung against the wall. To the bottom of this container is attached four or five feet of red Para rubber hose, and in the end of this rubber hose is inserted a plain glass cannula; a clip is placed upon the hose, in order that the flow may be controlled, and the cannula and tube which have been attached to the blood-vessel are joined to the tube running from the irrigator at the moment when they are both completely filled with liquid, so that no globule of air will be contained in the tube. This is most easily accomplished by tying the cannula in the vein of the arm and then filling it and its attached rubber tubing with some of the saline solution by means of a pipette.

Finally, let me say that I have used hypodermoclysis in hemorrhage in typhoid fever with the most happy results. It is far less disturbing than intravenous injection, the system takes up the liquid as it is required, and syncope disappears. An ordinary hollow needle may be attached to the tube already described for this purpose.

The solution should be warmed to a temperature of about 100° F. The dose ranges from one-half to one liter, and the frequency of the injections varies according to the exigencies of the case.

*The Treatment of Typhoid Fever.*—This commonplace title is nevertheless one which will interest those physicians who come in contact with this malady. That the body of the profession are not satisfied with the methods generally employed is proved by the numerous so-called plans of treatment and by the fact that these plans often wander far afield from the correct ideas of advanced pathologists as to the causes and morbid anatomy of this disease. Nor is this continual presentation of new plans of treatment due solely to this cause, for it also arises from the fact that on the one hand a

physician discouraged by a high mortality among his typhoid fever patients goes on a still hunt for new methods, or more commonly has a series of cases of mild infection which recover under the new management and are credited to it, when in reality the recovery is dependent upon the benign character of the attack.

It is not my intention to discuss the use of the various plans of treatment which have been brought forward. Only one of these will be presented for consideration, namely, that by the Brand method, which possesses an indorsement in the way of statistics that cannot be equaled by statistics collected in regard to any other plan. Very extraordinary results are claimed for it, and without doubt its value is great, for it certainly modifies many of the most alarming symptoms and the very symptoms which it is difficult to combat under other methods of therapy. Thus it is rare to meet with the advanced nervous exhaustion, the subsultus tendinum, and the muttering delirium in patients who are properly bathed, and circulatory disorder both local and general are not generally met with. Local congestions do not occur, delirium is put aside, and renal and dermal secretion is maintained. All these things are most desirable, and when it is found that the death-rate is also decreased it is not to be wondered at that there are physicians here and abroad who believe that in the Brand bath a panacea for this malady is at hand. It is, however, an old story with the medical profession that plans of treatment are lauded to the skies, remain popular for a given space of time, and then find the level of their real value. The very enthusiasm of the advocate speedily produces a large number of statistical reports from which the more conservative members of the profession may derive information, and often by the excesses of enthusiasm a plan is finally regarded by the body medical as lacking when in reality it is competent if used properly. The course of any new method of therapy is therefore a curve resembling some temperature charts; at first it rises to a dangerous height, then by reason of its primary violence sinks to a point below its ordinary or normal range, and then as the conditions are readjusted it rises to its proper level, along which it runs its course. It is while it is on this normal level that we can resort to a new plan with safety, for now it is possible to understand how it does good, and to grasp its limitations. The primary rise attracts analytical attention



and there is speedily a definite estimation of real value.

In an article recently published in the THERAPEUTIC GAZETTE myself and Holder have shown that the mortality of typhoid fever is decreasing in all parts of the world, a fact also pointed out still more recently in the editorial columns of the *Journal of the American Medical Association*. While it is true that in certain local epidemics the mortality approaches its old severity of about twenty-five per cent., it is a fact that the general average under every form of treatment is about nineteen per cent. at the most, and very often only eight per cent. Again, it is well pointed out by myself and Holder that good nursing and the avoidance of treatment, except for the purpose of modifying the severity of the malady, result in a marked reduction in the mortality. It is important therefore to deduct from the credit given to the Brand bath the important fact that the mortality is decreasing and that the attentive nursing associated with the bath is effective.

These facts are not adduced for the purpose of encouraging those who have not the courage to resort to the bath treatment, but rather that we may obtain definite views as to precisely how useful the bath is. It is not possible in this country to obtain the low death-rate reached by Brand in German Military Hospitals in times of peace, when everything favors any rational plan of treatment. As a matter of fact the experience of physicians to general hospitals all over the world shows that the death-rate is between seven and eight per cent. under the Brand method, and it would seem probable that the saving of life caused by the use of the bath in itself equals about two or three per cent. The saving of three out of every hundred patients would therefore seem in itself to be a trophy well earned by the tubbing plan of treatment, and no one who is acquainted with the statistics of this method or the clinical character of the cases can fail to gladly credit it with this benefit. Cabot, of Boston, has well said in a recent paper that the fault with all definite plans of treatment is that they are supposed by their followers to be the best, and therefore the physician does not look for anything better or for any modification which will remove faults and still possess all the advantages.

It would seem, therefore, that the faults should be first pointed out, for the manifest

advantages have already been discussed. The first fault is in one sense theoretical, in another practical, namely, that no routine method of treatment is rational, for the skillful physician knows that every case should be a law unto itself. In other words, on the face of it, any plan which professes to be of value for all cases does not exist as a fact. When a universal plan of treatment is developed the skill of the physician will no longer be of any service. There must of necessity be states in which the bath is all-powerful for good, and others in which many conditions distinctly contraindicate it. Such conditions may be great cardiac feebleness, the advance of the disease to such a point before the patient comes under observation that his system is too feeble to react to the bath, and the presence of hemorrhage or perforation.

Another disadvantage in the routine use of the bath at 70° is the fact that we are subjecting the patient to a severe measure when perhaps another milder one will do, and it is the duty of the physician not only to prescribe a mode of treatment but to see to it that it suits the needs of his patient.

Before we can decide what cases need to be tubbed it is necessary that we understand the physiological effects of the bath. Unfortunately, very few of those who use the routine bath method do so with clear ideas of how it acts, and no one in this country so far as we know has ever taken the trouble to study with care the effects produced upon the physiological processes in the body by the full bath. One of the eminent therapeutists in this country has recently expressed his belief that the good derived from the bath is solely due to the reduction of fever. On the contrary, those who have used the bath and have made its study a constant object of observation have again and again asserted most positively that the fall of temperature is by no means the most efficient function of the bath, and they are unanimously agreed that its chief function is to produce reaction or the reflex and direct effects following the application of cold to the skin. These effects are most valuable and important.

The general temperature is often not much affected by the bath and Baruch states he has often seen the mouth temperature after a bath of 65° in typhoid fever reduced to normal while the rectal temperature was two degrees above normal. This is also stated by Liebermeister (*Handbuch der Path. und Therapie des Fiebers*, p. 102).

**REMARKS ON THE SYMPTOMATOLOGY  
AND THERAPEUTICS OF ARTERIAL  
DEGENERATION.\***

BY JOSEPH COLLINS, M.D., OF NEW YORK,  
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the City Hospital.

The writer appreciates the indefiniteness of the title arterial degeneration, but he is unable to encompass the remarks which he desires to make under any other single caption. If the morbid anatomy or mode of development of vascular degeneration were under discussion it would not be difficult to consider the subject in the classical, and at the same time logical, way. But it is not my object to discuss the subject from the standpoint of the master, but rather to put before you for your consideration some ideas, or fancies, concerning the pathogenesis of certain varieties of arterial degeneration which seem to be more plausible the longer I ponder them. In addition, I wish to relate a few clinical histories which shall go to show that although symptomatic manifestations of this morbid condition are extremely disparate, recognition of the underlying disease is the *sine qua non* of their successful treatment. Finally I desire to emphasize the necessity of early, persistent and rational treatment. A word of apology might be appropriate for reading a paper on arterial degeneration before a neurological society, but as I am one of those who look upon neurological practise as a very important part of internal medicine, I shall not offer it.

The manner in which I shall attack the subject will be quite the reverse of the plan usually employed when writing on a given subject or disease. I propose to point out that as yet vascular degeneration, using the term in the broadest sense, is devoid of anything like a definite symptomatology. It is for this reason that separate and individual consideration of it is not often given in text-books on the practise of medicine, on neurology, and on applied therapeutics. The clinical features of vascular degeneration vary so enormously in different cases that the phenomena in many instances are supposed to constitute definite diseases, which are allotted individual description in our text-books, such for example as chronic contracted kidney, vertigo, encephalomalacia, etc. Viewed from a pathological standpoint

there seems to be more well defined convictions as to the status of vascular degenerations. Varieties have been described, associated with certain diseases, such as syphilis and tuberculosis, while others have been allotted the designation "premature vascular senility." The pathology of so-called atheroma of the blood-vessels is as little understood to-day as it was a generation ago, albeit the morbid anatomy of the condition is very well known. The pathological state known as arterial sclerosis, or arterio-capillary fibrosis, still offers much difficulty in its pathological interpretation.

I shall not attempt to say anything of syphilitic degeneration of the blood-vessels, which is almost always an endarteritis, except those cases in which the degeneration is dependent upon gummatous infiltration of the vessel wall, nor shall I speak of atheromatous changes incident to senility.

The theories that have so far been proposed to explain arterio-capillary fibrosis are all of them insufficient, because we continually encounter cases which cannot be interpreted according to any of them. One of the most powerful factors in the genesis of the disorder is a something which we call hereditary influence—a tendency for those who have functional disease of any kind to endow their progeny with the susceptibility to develop similar or dissimilar ailments. What the inherent shortcoming is cannot be stated positively, but I venture to believe that it will some day be found to stand in definite relationship to that system of the body which presides over the growth, the development, and the full maturation of the body and all its tissues, viz., the sympathetic nervous system. I cannot state the many facts and analogies that support this view, as Dr. Joseph Fraenkel and myself intend to do in a forthcoming publication, but it has seemed necessary to make statement of this belief, in order to make my views concerning the pathogenesis of arterio-capillary fibrosis more clear.

The immediate causation of arterio-capillary fibrosis is attributed to gout, rheumatism, alcoholism, indigestion, exposure, overwork, enervating, depraving influences and environment, and to many other analogous factors. Every one admits that some of these conditions are oftentimes to be observed in the antecedent history of a patient who develops arterio-capillary fibrosis. But none of them need be present. In fact, oftentimes search for any of them will be in vain. It is

\* Read before the Brooklyn Neurological Society, April, 1898.

possible that sex variations in the liability to, and the use of, these injurious agencies may explain the fact that the disease is enormously more common in males than in females, and very much more common in degenerate races such as the negro than in those that have reached a more advanced evolutionary stage. But the fact is this selective variation in races and sexes needs far more comprehensive handling than it has heretofore received.

Man is as old as his vessels and woman is as old as she looks is more truthful than poetic. If one observes those about him in the street, in the railway car, in the church or the theater, he cannot but be impressed by the fact that for every woman he sees who has such suggestive marks of arterial sclerosis as tortuous, rigid-looking temporals, features expressive of senility at variance with apparent years, a recession of the fronto-temporal hair line indicating the decession of allotted years, etc.—that for every woman he sees with such signatures he will see ten men. Casual observations thus made are fully borne out by the experience of the bedside and the consulting-room. Why should this be? Is it because men work harder, drink harder, play harder and take less intelligent pleasure and relaxation than their wives and sisters? It may be, but when we look at the matter carefully it verily does not seem that such an answer encompasses the explanation. We know of countries wherein the hardest physical labor is done by women, and of other countries in which riotous living, eating, drinking and indulging is only vouchsafed in part to the male, and yet arterio-capillary fibrosis apparently spares the woman in the case. The explanation of this I shall leave for you to suggest; it surely is worthy of careful thought.

It is not sufficiently recognized that the vast majority of the diseases which the neurologist encounters, aside from diseases of an infectious nature, are of two kinds—those conditioned by functional perversion of the vascular system, and those caused by degeneration of the vascular system. That this is a fact, every worker in the field of clinical neurology will admit. The moral to be drawn from this is to search for the *modus operandi* by which these conditions are brought about. I venture to think that if this is done a clearer conception will be had of many diseases, especially functional ones, that are to-day considered very obscure.

I shall not say anything this evening of

functional perversions of the vascular system which are not accompanied by changes in the blood-vessels, but shall limit my remarks principally to arterio-capillary-fibrosis.

The theory which seems to me most satisfactory in explaining the pathogenesis of arterio-capillary fibrosis is one that looks upon it as a disorder of the sympathetic nervous system, the vegetative nervous system. We know a great deal about the development and the anatomy of this very important part of the body; we have some information regarding its functions; but we know nothing, or next to nothing, of the phenomena that result from its disease. We are inclined to believe that certain neuroses, dermatoses and trophic states are dependent upon its depravity and disease, but aside from this no rational conception of its functional perversion or organic disease has yet been offered. We find ourselves, therefore, in the very anomalous position of knowing that the sympathetic nervous system is the most important tissue or system of the body, and yet we are entirely ignorant of the conditions that result when injurious factors, single or manifold, interfere with its proper working. Pathologists have neglected it with seeming studious intent. For instance, in those diseases in which there cannot be the slightest doubt that the sympathetic nervous system is the seat of the morbid influence, workers in the field of morbid anatomy have gone through the various tissues of the body with great diligence, and commendable care, but they have left the vegetative nervous system as if it were something apart from the rest of the body and not susceptible to injurious influences. We may cite in proof of this the status of the morbid anatomy of such diseases as diabetes, Addison's disease, and Graves' disease—diseases which time will prove, I venture to believe, to be as closely dependent upon lesion of certain parts of the sympathetic nervous system as typhoid fever is known to be dependent upon a specific form of ulceration of the glands in the small intestines.

One of the most important functions of the sympathetic nervous system is to innervate the cardio-vascular system. The next most important function is to supply the glandular system. These two systems, being extremely interdependent and harmonious, when one is disordered the other is bound to be deranged, and *vice versa*. It is perhaps needless to say that no other kind of nerve fibers, save those

of this system, go to these tissues. The factors that have been enumerated as causative of arterial degeneration, arterio-capillary fibrosis, such as gout, rheumatism, alcohol, indigestion, overwork, and the like, are all operative through the sympathetic nervous system, and the changes which they cause in the blood-vessels are conditioned by perversions of this system. It is an evidence of concentric limitation of the intellectual field to search for the pathogenesis of arterial sclerosis in the products which remain in the system, the result of incomplete metabolism or of defective elimination, and at the same time to neglect the mechanism by which these conditions are brought about. To illustrate my meaning, within the memory of the most recent of us the advent of the physiological chemist, the physician versed in the mysteries of the laboratory, has been hailed as the coming of the interpreter of what are called humoral and diathetic diseases. The hope has been held out that his investigations would illumine the obscurity of their development, and that he would point the way for their prevention. Unfortunately, we are yet awaiting the realization, although he has been studiously at work for a score or more of years. True it is that he has shown, after laborious investigations on the excreta, that certain products of metabolism, particularly of nitrogenous metabolism, are deficient or overabundant in the excreta. In conjunction with the clinicians he has observed that certain outbreaks of disease may coincide with one or the other of these abnormal states, and he jumps at the conclusion of cause and effect, without taking into consideration that these are but incidents and that the antecedents of such defective metabolism are to be sought in that system which regulates normal metabolic changes, preserves its equilibrium, and manifests changes in the secreta and the excreta when injurious influences pervert its function. If we take, for instance, the enormous amount of work that has been done on what is fallaciously called intestinal asepsis, or intestinal antisepsis, and the system of therapy that has sprung up as a result and ask ourselves, What does it all amount to, what has really been gained? the answer must be, Practically nothing. And why? It is because we have not taken a sufficiently broad and comprehensive review of the forces antecedent to pathological fermentation, to incomplete metabolism, to defective elimination, to partial oxidation, and the like. In short, it is because we have not taken the

sympathetic nervous system, the great conditioner of secretion, of excretion, of circulation, and of oxidation, into the question.

A similar arraignment may be made of the hiatus in our knowledge of the pathogenesis of arterial degeneration. The causation of acute inflammation of the blood-vessels, arteritis, and phlebitis, or of chronic inflammation of the blood-vessels, has offered no considerable difficulty, because their causation has been searched for in the blood and in fact are operating directly on the blood-vessels. But non-inflammatory diseases of the blood-vessels are not caused by diseases of the blood, although they are oftentimes accompanied by morbid blood changes, secondary to and coincident with diseases of the blood-vessels. Degenerative changes in the vessels, unless sequential to inflammatory changes, are of slow development, they are not uniform in their distribution, they occur simultaneously in far-apart regions of the body, and they are likely to attack the blood-vessels of organs that are highly functionable. These facts indicate that such degeneration is the resultant of a unity of causation, and search as we may for such unity of causation, we can only find it in the sympathetic nervous system. If we take for instance the relationship of arterio-capillary fibrosis to rheumatism, to gout, to alcoholism—in short, to conditions that cause perversions of metabolism—and attempt to interpret them on any other basis than that which posits primary disorder of the sympathetic nervous system and consequent secondary manifestation of disorder in the blood-vessels, we shall early encounter insuperable obstacles. We cannot, for instance, believe that the physical dissociation of the components of the blood which is evidently at the basis of rheumatism, or the chemical changes in the blood which form the apparent basis of gout, or the presence of ethereal sulphates, uric acid, etc., which are attendant upon chronic intestinal indigestion, exercise a mechanical and irritative influence upon the blood-vessel. If they did, we must needs have a generalized desquamation and endothelial proliferation throughout the vascular system, the same as results in the tubules of the kidney when substances irritant to that organ are excreted, and the tunica intima would be the part primarily diseased; but such is not the case, for in every instance the primary changes are in the media and adventitia.

We can, however, readily see how these dissociated changes in the blood which are

at the basis of gout and rheumatism, these evidences of defective metabolism and excretion, which occur in chronic indigestion, etc., are immediately conditioned by disorder of the sympathetic nervous system, because this system presides over secretion, over excretion, over metabolism, and over vascular regulation. When the chronic intoxicants are present sufficiently to cause any of the diseases enumerated, or when alcohol so exercises its pernicious effect upon the sympathetic system as to overthrow its functional balance, nutritional changes will begin to be manifest in the blood-vessels through the medium of the vasa vasorum supplied by the sympathetic nervous system, and these changes in the media, in the adventitia, and eventually in the intima, constitute the morbid anatomy of arterio-capillary fibrosis.

In the same way are to be explained those cases which result secondary to renal disease, a comparatively small proportion of cases, it must be said, occurring in this way. The poisonous matter which should be excreted by the renal organs remains in the system, and its peccant activity is manifest on the sympathetic system of nerves and through it on the blood-vessels. In other instances, the retained noxious matter is most operative on the cerebro-spinal system to cause the well known symptoms of acute or chronic uremia.

And now, to turn to some of the symptomatic features of arterial sclerosis or arterial degeneration, I shall cite a few cases to show that the clinical phenomena may be absolutely different in one case than in another. In other words, unlike other tissues of the body, which when diseased call forth complexes of symptoms having definite symptomatic foundations which are nearly constant, the symptoms caused by arterio-capillary fibrosis are extremely disparate. The first case that I shall cite is one that may be labeled "lumbago," if you please. This is a term that has never had any definite significance attached to it, but nevertheless it has risen to the dignity of separate consideration in medical journals and in systematic treatises.

The patient, referred by Dr. St. John Roosa, is a young man, of temperate habits, who is happily married and contented with his profession and outlook in life. He has not had syphilis, nor has he been addicted to excesses. He complained of attacks of severe pain in the back, which came on every month or two, sometimes at longer intervals, sometimes at shorter, and which necessitated

his remaining under cover for from ten days to two weeks. When the attack first came on the pain in the small of the back was so severe that he could not move. The pain after a short time tended to irradiate down the thighs to the knees. Sometimes it came like a stitch or crick, beginning in the center and radiating out toward the hips, leaving a very sore feeling in its wake. These attacks had weakened him considerably, and he felt the necessity for some sort of a brace or corset to help pull him together. He was of good physique, but of sallow complexion, and somewhat emaciated, and he complained that his strength was very indifferent. His first attack of pain of this character dates back to about five years ago, and apparently followed considerable excitement, overexertion, and exposure. A boat in which he was fishing off the banks having sprung a leak, it was necessary to bale for a number of hours until they were rescued. Some time after this he was treated for an attack of nervous prostration, by a physician of Boston. He has received a great deal of medication in the last few years, and before coming to me he had the luck to escape from a surgeon who had been treating him for a number of months and who finally decided that he would open him up and make captive his kidney, this gentleman having apparently read something of the symptom-complex known as Glenard's disease. Examination showed no departures from normal worthy of remark, save resistant arteries which would not compress completely under the finger, an accentuated aortic sound, and the pallor already spoken of. The hair is scant, and that which remains is of quite a different character to the natural hair. The patient said it was not hair but fur, and to the touch it was much like cat's fur. There was a well defined zone of marginal eczema around the hair line, and the finger- and toe-nails showed decided trophic changes. An examination of the urine showed it to be diminished in quantity, the average being from thirty-five to forty-five ounces, a relative excess of urea, a number of hyaline casts, but no blood, no albumen, no pus, no epithelia. Repeated examination of the urine, day after day, and month after month, never revealed the slightest trace of albumen nor of epithelium. The patient was put upon a diet consisting largely of buttermilk and cream, skim milk, the proteids diminished, the hydrocarbons and carbohydrates tentatively increased, and instructed

to take large quantities of water. Medically, he was given in the beginning diuretin in ten-grain doses until the quantity of urine was increased, and then put upon iodide of potash and Basham's mixture. Careful attention was given to the excretory organs, the sympathetic nervous system was stimulated by rain baths, and the result is that the patient has gained twelve pounds in weight and has not had an attack of so-called lumbago since he first came under observation, now more than seven months. The general health has increased proportionately. Occasionally a hyaline cast has been found in the urine, but aside from that it is quite normal. The blood-vessels give a materially different impulse to the finger and show a different sphygmographic tracing than they did in the beginning, and the aortic sound is by no means so accentuated.

I anticipate that some of you may say that this is a case of Bright's disease, and I shall be inclined to agree with such a one if he will point out wherein it agrees with the varieties of disease of the kidney that we are taught to recognize under that name. Until then I shall look upon it as a beginning wide-spread vascular degeneration conditioned immediately by disordered nutrition dependent upon perverted function of the sympathetic system, occurring in a comparatively young man, and that his recovery is an evidence of the recuperability of such blood-vessels when the lesion is not advanced.

The second case that I shall recite is a much more conventional type of arterial degeneration. The patient, a man forty-eight years old, was seen with Dr. J. C. Lynch, of Bridgeport. His complaint was of "dizziness in the head." For the past year he has had occasional attacks of vertigo, during which he would feel as if he were going to fall forward, and he thinks that for a moment he would be unconscious. For the past two or three years it had been noted by himself and by others that there was a change coming over his disposition, his memory, his ambition, and his courage. Although by no means a sluggard or non-observant, he had lost interest in things and in people very decidedly during this time, and physical strength had become impaired. About seven weeks before I saw him he began to have attacks of giddiness very frequently, so that he was obliged to go to bed. The vertiginous sensations were of falling and of rocking sideways. They would last for about ten minutes, and as soon as they disappeared he felt very

hungry. It was particularly remarked that the attacks of vertigo were likely to come on when the head was much extended on the pillow. In addition to vertigo, he has had a good deal of frontal headache, flushing of the face, nausea, cold extremities, sluggish action of the intestines, and a tendency of the abdomen to balloon without apparent indigestion. During the past year he has had a number of crying spells, but was more often in a state of indifference than of depression. Examination showed a sluggish condition of the pupils, a fine tremor of the tongue and of the extremities, and over-excitable knee-jerks. The temporal arteries were conspicuous and sinuous, they rolled beneath the finger, and the walls of the radial artery were discernibly sclerotic to the touch. The second sound of the heart was loud and booming, the first sound short and jerky. Aside from this the visceral organs were normal. Examination of the urine showed no abnormality, save an excessive secretion averaging from sixty to seventy ounces, and a comparatively low specific gravity, varying from 1.009 to 1.013. A few days before I saw him his physician had placed him on an operating table to search for hemorrhoids, of which he complained. The examination caused him pain, and he hung the head over the side of the table. In a few minutes he was taken with a universal convulsion very similar to an ordinary epileptic attack, which lasted about a minute. Since that time there has been no repetition of this, nor was it apparently attended by any evil consequence. His physician reports that treatment consisting of absence from business, a uniform milk diet, regulation and limitation of physical exercise, the administration of a mixture of nitroglycerin and iodide of soda, and an absorbable preparation of iron, has caused the attacks of vertigo to cease and a bettering of the patient's general condition.

The interpretation which I put upon the epileptiform attack is that this patient, with advanced arterial sclerosis, put his body into such a position that an undue amount of blood was sent to the cerebral blood-vessels, which caused their dilatation. The process of disease in the vessels having destroyed their elasticity, the return to their normal caliber was impossible, and the result was a passive congestion, which was manifest externally by symptoms of motor irritation, and these subsided only when the patient was brought into a sitting posture, the return to normal cali-

ber of the blood-vessels being assisted by gravity.

A third case which I shall cite as an evidence of arterio-capillary fibrosis is one that may be diagnosed as acroparesthesia, a condition which was formerly described by Putnam, by Dana, and by the writer, as the paresthetic neurosis, but which is now usually designated by the term above mentioned, a sufficiently fitting one, meaning as it does perverted sensation of the extremities. The patient was a woman of fifty, who has worked hard all her life, and who has but recently finished with the menopause. She complained of giddiness, and of vertical headache, but the principal reason for coming to the clinic was that her hands got unwieldy and numb, less dextrous and agile. She could not sew, and was prevented from doing any work save that of the grossest character. Very often the hands and feet were the seat of tingling sensations, feeling of "pins and needles," and this was particularly liable to occur in the early morning, it being so severe at this time that it usually awakened her. In addition she complained of flatulency, of constipation, of impaired strength and ambition, of cold extremities, and of occasional attacks of profuse perspiration, which weakened her. Examination showed a high-tension pulse with weak heart beat, thickened arterial walls, an extremely accentuated aortic sound, tortuous temporals, and the general vascular conditions that constitute the signature, arterio-capillary fibrosis. She improved under the same plan of treatment that was advised for the previous patient, except in this case *cascara sagrada* and *belladonna* were added to the list.

The fourth case that I shall cite is one that had given some difficulty in its interpretation, and I shall be glad to hear if any of you have encountered similar cases in your practice. The patient was a manufacturer, sixty-four years old, who has been abstemious in everything save work. He has labored long and persistently to shear the sheep with the golden fleece, but, notwithstanding, he retained a commendable degree of bodily vigor and mental health. He denied venereal disease of any kind, and he is married, but childless. Until about three months before I saw him with his physician he had been in his customary health, but had been harassed somewhat by business cares. It was remarked that he did not disport himself as formerly; that he was preoccupied and less communica-

tive, and inclined to be depressed and easily irritated. He slept badly and lost flesh progressively, so that at the end of about ten weeks his weight had fallen off thirty-five pounds, and his apparent age had increased about ten years. Accompanying these were perversity of appetite, constipation, and excessive secretion of urine. Although apparently of sound mind, of fair memory and reasoning capacity, he began to have strange fears and obsessions concerning his business and his personal safety. These were in a measure undefinable, but he often stated that he would not be allowed to remain home long; that the city or his creditors would have him sent away, although he would give no explanation of these statements. At such times his demeanor was that of one who had indulged in some transaction that did not redound to his credit and which he desired to keep to himself. These false beliefs were in no way systematized, nor could he give any reason for their possession. He remained at home, fearful of going out, and day by day seemed to get a little further removed from bodily health, the principal symptoms being sleeplessness, restlessness, irritability, groundless fears, and progressive loss of flesh, all without apparent cause. Examination revealed, in addition to the impaired nutrition and its concomitants, loss of knee-jerks, contracted pupils which did not react to light and shadow, and very little in accommodation, and fine tremor of the extremities. There were no sensory disturbances, no dereliction of the sphincters, and none of the associated symptoms of *tabes*, or of the somatic and physical conditions that go to make up the signature, general paresis. The evidences of arterial degeneration were striking in the blood-vessels, in the peripheral circulation, in the heart, and in the urine. Treatment directed toward the relief of this degeneration has been followed by improvement, but he has not been under treatment sufficiently long to warrant a statement of how complete his reparation will be.

This is a type of case that physicians look in vain to their text-books for recognition and elucidation. The complex of symptoms do not fit in with any of the described diseases. The case is not one of *tabes* nor of general paresis, although it has a number of the important symptoms and accompaniments of these two diseases; but the general features of the case are so unlike these diseases that no one would make the mistake of allotting it to either. If one chooses he may call it

neurasthenia of a grave type or a variety of melancholia, and dependent upon organic changes in the vessels, but such baptismal indulgence does not help us any in interpreting the nature and genesis of the disease nor in directing the treatment. The important point, I venture to state, is the recognition of the fact that we are dealing with a disease of the vegetative system of the body which is manifested principally in the blood-vessels, and that the treatment of the mental and nervous symptoms must be through this system, and these tissues.

The next, and last, case to which I shall refer is one that has interested me very much, first because of the effect of treatment, and second, because it has seemed to me an important contribution to aphasia. The findings of the case have been summarized in my recent book, "The Genesis and Dissolution of the Faculty of Speech" (The Macmillan Company, New York, 1898).

Mrs. X., a widow, sixty-three years old, the mother of eight children, has had a vigorous, active life, free from ill health, save that twelve years ago she suffered severely from attacks of renal calculi. During the past year or two she has complained of indigestion and more recently of a dull, aching sensation in the back of the head and neck, with occasional attacks of very severe pain in the left temple. For a few weeks previous to the beginning of her present symptoms she suffered from insomnia, from irritability, nervousness, and forgetfulness. Her son, a physician, gives the following account of the onset of her aphasic symptoms: One week before consulting me she discovered, while making a call, that her speech had become, without warning, very much embarrassed. She could not finish the sentence that she had started to speak. She forgot what she wanted to say. She chafed under this impotence and got very much excited. She returned home in a street car, and was much astonished to discover that on looking at the signs with which the cars are lined that she was quite unable to comprehend their signification. She could see the letters and words, she knew that they were letters and words, but they conveyed no meaning to her. When she got home she tried to tell her family about her disability, but was able to say only a few words, and these were entirely disconnected. After trying to speak for a time she became excited and began to cry. On the following day, when she awakened, she could say only "Yes" or "No," but as the

day wore on her vocabulary became somewhat larger. It was particularly remarked that when she was excited or very emotional sometimes words would flow out of her mouth in an astonishing manner. From that time until I saw her there had not been very much change in her capacity for speech production.

The following is a stenographic report of the examination to determine disorder of voluntary speech. In response to the request to tell me all that she could concerning the onset and course of her symptoms, she said:

"Well, mem-mem—three weeks, m-m-em—feel-m-em-em—sometimes [prolonged pause, seems to be thinking] couldn't thought—no thought—forget—but—eh—last Friday [another prolonged pause] am—no—noticed they—I couldn't—eh—I—[prolonged pause] I couldn't tell, am, I don't, I can't, can't express [explosively]. I can't tell—I cannot [points to her head and looks weary]. It seems, I can't, last Monday, con-con-nects—sentence, two or three words—gone. Was—gone, blank, didn't know. Can't think, was gone, forget—forget everything. Couldn't, couldn't, can't."

To test her capacity to repeat, I asked her to say after me, "I stood on the bridge at midnight." Her reply was:

"I stood—the—night," said with great effort, and with apparent endeavor to repeat each word as quickly as they fell from my lips.

"Still sits the schoolhouse by the road?"

"Forget—yes—the—the s' s' s' forget—road."

"Waterloo was a battle of the first class, won by a captain of the second."

"The bat-tle, ah, me, ah me, ah."

It is particularly noticeable that when I speak she endeavors to say the words after me very rapidly one word after another, but it is quite impossible for her to repeat more than a word or two. The patient is an English lady who formerly was able to speak German very fluently, but when I recite the first verse of Schiller's "Bell," beginning, "Fest gemauert in der Erde," etc., she is not able to repeat a word of it. I then ask her to repeat the Lord's Prayer. She assures me by nod of the head that she cannot do so, but when encouraged to try she says: "Fa' a' ther—our fa—" [gets excited and I believe tries to convey to me that she was unable to repeat it last evening]. I then asked her to say it to herself. She again indicates that it is entirely impossible. I ask her if it is impossible, and she says "Yes."



It is interesting to note that when I encourage her to say it to herself after I have told her that I am going to say it in my internal language to determine if we reach the end simultaneously, she adopts the conventional attitude and manner, probably thinking that they will prompt the recalcitrant words, but all to no purpose. She is quite unable to read, either in a loud voice or to herself, although she can say a word of what she reads here and there, but words and sentences convey no meaning to her. She takes up the newspaper, cons it carefully, then puts it down with an expression of dissatisfaction and disgust. In other words, there are manifest verbal blindness and profound alteration of mental images. There is no trace of hemianopsia.

When I request the patient to write her name, she does so promptly. When I ask her to write the name of her son, she does so; likewise the street and number where she resides. She is absolutely unable to write spontaneously. Her capacity to write from dictation is tested by asking her to write, "When in the course of human events," but she is absolutely unable to do so. The only word that is produced after numerous attempts and repetitions of the sentence is the word "When."

Writing from copy is done without trace of hesitation or error; and when she is asked to copy printed letters in writing she does so with great readiness. She comprehends spoken speech, but oftentimes it is necessary to repeat before the meaning of what is said fully dawns upon her. In other words, although there is no word deafness, there seems to be some difficulty in calling up auditory images quickly and readily.

She has no trace of hemiplegia, unless we call a slight asymmetry of the angles of the mouth an indication of defective cortical innervation, as the right angle of the mouth seems to be a trifle lower than the left. There is no ataxia or incoordination of the extremities; the knee-jerks are lively and of equal intensity on both sides; the pupils react to light and shadow; there is no tone deafness or object blindness. The urine contains albumen and casts; the pulse is regular; the arteries are hard and incompressible, and the second sound of the heart is very much accentuated. In other words, she has extensive arterio-capillary fibrosis.

The interpretation which I put upon the case is as follows: Pathological diagnosis—general arterio-capillary fibrosis, with conse-

quent slight encephalomalacia of Broca's convolution. Clinical diagnosis—true cortical motor aphasia, articulatory kinesthetic aphasia. I need not remark that the elicitable symptoms parallelize in every detail those typical of this form of aphasia. The chief deficiency of internal language seems to be an inability to evoke the articulatory kinesthetic images of the words, and this constitutes a gap in the circuit of internal-speech impulses. No more illustrative case could be cited to show that spontaneous writing and writing from dictation are disordered commensurately with voluntary speech in true cortical aphasia. Moreover, the case shows with uncommon clearness that a striking degree of verbal blindness occurs with cortical motor aphasia.

The patient has improved very materially under the same plan of treatment that was given in the previous cases.

And now, to turn more directly to the treatment of this obscure but widely prevalent disorder. I have little that is new to offer, but it may be of some advantage to make a statement of personal experience, that one may determine if it tallies with that of others. No one can have had much to do with cases of this sort without reaching the conclusion that their successful treatment must needs be almost as individualized as we have seen their causation to be. Although there are certain underlying principles which guide us in the application of medicinal, hygienic and dietetic measures, which are so sanctified by long experience that no one thinks of doubting their applicability, nevertheless they cannot be applied without discrimination and judgment. All cases are bettered if the excretory avenues of the body are kept scrupulously free and functionally active. The diet should be of the simplest, most easily digestible, and most nutritious. This is a necessity that is scarcely ever carried out, even though it be enjoined, for the patient with arterial sclerosis cannot be persuaded in the beginning of the gravity of his disease. It is not improbable that arterio-capillary fibrosis would not be so uniformly progressive were it not for the hesitancy of physicians in diagnosing it before it has produced symptoms that threaten the duration of life, and the fact that patients will not assume the necessary attitude toward regimen, hygienic and medicinal measures and persist in them. If the cases are seen sufficiently early, the treatment should be directed toward the maintenance of the functions of the sympathetic nervous system, par-

ticularly its metabolic and vascular functions. In doing this it may be necessary to retrench the work put upon it; to aid it in doing its work; and to guard against the evil effect that may follow its partial disability. The retrenchment consists of the dietary and hygienic measures already mentioned; the guarding against consequences of disordered sympathetic perversion is sufficiently explicated by what has been said regarding the emunctories; the third indication, namely, that of assisting the sympathetic in carrying through its metabolic and vascular functions, is best met by life in the open air, if possible, by intelligent exercise, and by hydric procedures.

I am well aware that these statements are truisms. I repeat them only because it seems to me that they are not sufficiently often insisted upon in practise; in other words, that an endeavor is made to supplant them by medicines—a fatuous hope.

Of all the hydric procedures that I have found most serviceable, the rain-bath is by far the most important; if the disease process is not far advanced I regard it of great service. Naturally it should not be used in senile cases. It depends upon the vitality and reaction of the patient whether or not he should be first heated somewhat by being wrapped in a hot sheet and blanket, or put in a hot box for a few minutes, with the head exposed, before being put in the circular bath. If his vitality is not very abundant, and his reaction responsive, this heating before the application of the rain-bath will be found to be very salutary.

The question of exercise is one that cannot be decided for even a given case until that case is studied individually and with care. I am inclined to believe that the promotion of metabolism, brought about by mechanical percussion, massage, and the other mechanics of Zander institutes, is of far greater utility than walking, riding, golfing, and the like; and in any case the latter should be indulged in with great moderation. The value of fresh air, of course, is not overlooked, but it has been my experience that patients with arterio-capillary fibrosis do better when they take fresh air without very much exercise with it. For many patients such a plan of treatment as this spoken of will be entirely unfeasible. But here we have to make the same concessions to breadwinners as we do in other diseases that need different environment and change of climate.

The medication of arterio-capillary fibrosis

which physicians rely upon more than anything else, probably, is the administration of iodide of potassium, the nitrites, and iron. No one doubts the very great importance of all these measures, but the mistake should not be made of relying too exclusively upon them. Naturally, the iron favors oxygenation and oxidation. The iodide salts have some action upon the sympathetic nervous system which we in no way understand; and both of these results are sought for in the treatment of this disorder. The question that every one has to decide in administering the iodides and the nitrites is, what salts or preparations are most serviceable and how long shall they be kept up? For instance, after giving nitroglycerin for a month or two months, or even longer, the question arises should it be persisted in, the indications for its use being still present in the increased tension of the pulse? It is my conviction that better results are obtained if the nitroglycerin is interrupted for one week out of every four or thereabouts, and dependence placed in the meantime upon opium to maintain the compressibility and elasticity of the artery. I know that opium increases the systole and raises blood-pressure, and that therefore it is contraindicated in arterio-capillary fibrosis. Nevertheless, it is my experience that in very advanced cases of this condition quite as much, or more, reliance can be placed upon morphine to contribute to the patients' comfort and to the length of their days than on any other single measure.

There are one or two points concerning the administration of the nitrites and the iodides to which I would like to refer. The first is that nitrite of sodium is incomparably more serviceable than nitroglycerin. The most important factor in its favor is the duration of its action. Its physiological effect lasts about four hours, while that of nitroglycerin is from fifteen to twenty minutes. The second point to which I wish to call your attention is that nitroglycerin gives me greatest satisfaction when it is administered in fractional doses—*i.e.*, from  $\frac{1}{100}$  to  $\frac{1}{80}$  of a grain every half hour, or even every fifteen minutes. This dosage is kept up until the desired effects are produced, the quantity being afterward increased or diminished as the needs of the case may make it apparent.

Of the iodide salts, the iodide of soda is by far the most deserving of use in arterio-capillary fibrosis. It has nothing like the tendency to derange the digestive tract that the iodide of potassium has. I prefer to ad-

minister it in milk if the patient can take the latter; if not, any alkaline medium furnishes the most acceptable substitute.

Thus I have been able to offer nothing in the way of therapy that is at all new to you, but in closing I would like to say that to my mind the most important element in the treatment of arterio-capillary fibrosis is the study of the individual case, that one may detect wherein exists the defect of the vegetative system which is gradually undermining the blood-vessels. When its apparent source has been discovered, be it gout or rheumatism or what not, we should not be content in attacking that. The factors antecedent to the apparent cause must needs be eliminated, then the state which we have been speaking of cannot come into being.

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*CALCULOUS DISEASE, AND THE TREATMENT BEST ADAPTED FOR ITS PREVENTION.*

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The results of modern operative procedure for the removal of calculous matter are certainly admirable. These excellent achievements of our craft are themselves a great monument to the triumph of modern surgery, and yet how infinitely preferable would it be to be furnished with the means of restraining the formation of calculi, on the first appearance of evidence that such a contingency is imminent or likely to occur.

I believe there exists a period in the history of the process which leads to the formation of renal or vesical calculus at which it might be possible to prevent the development of a considerable deposit, and hence the necessity for mechanical interference in its removal. For our purpose, it suffices to regard all calculi as generally divided into two classes—those which have a local, and those which have a constitutional, origin. By the term "local" is meant those concretions whose formation depends upon diseased action in the bladder only, and not depending upon constitutional diathesis; and by "constitutional" I mean formed in consequence of a malassimilation which has become more or less inherent in the system. The large majority of renal and vesical calculi are of constitutional origin, and it is to this class we wish to refer in particular. Preventive medicine has little to do with calculous matter of local origin except in a mechanical

way, as for instance the breaking, dissolving and washing away of vesical calculous matter. Mechanical means are of no avail when stones are of constitutional origin, because their component elements are separated from the blood and it is only at this early stage that anything can be of avail.

Now, from available statistics and observation, we know that nineteen out of twenty of such stones have uric acid for their basis, the remaining one in twenty being oxalate of lime; and, less commonly still, there are phosphatic stones which are of constitutional origin also. Reasoning on this premise, the proposition practically resolves itself into the prevention of uric acid deposits.

In our examination of the early history of a case of persisting uric acid formation, we not infrequently see a marked manifestation of hereditary influence. How frequently do we find in tracing up the family history of a uric acid patient that his father had "gravel or stone for the last twenty years of his life." It is not an unusual experience to find a history of gout in connection with the patient with a uric acid stone. Few indeed are the calculous patients with neither gravel nor gout as factors entering into the history of their preceding generations. This hereditary tendency varies in force or strength in different families, but scarcely more than is found in tubercular or cancer diseases. Some persons at thirty years of age show persisting uric acid deposits, others at forty, others not until sixty. Of course, the earlier the age at which it appears, the stronger you may infer the hereditary disposition to be, and the more obstinate, probably, will be its tendency to persist. The first symptom of this condition, usually, is the frequent occurrence of a pink sediment at the bottom of a vessel in which urine has stood. This deposit with its staining propensity is the first thing which excites attention on the part of the patient. This character of urine, passed originally perfectly clear and healthy in tint, soon, upon cooling, becomes turbid and opaque. The lower the external temperature and the smaller the amount of urine passed, the more marked these phenomena seem to be, hence the more frequently to be found during the colder months of winter, when smaller amounts of water and fruits are consumed. The change consists in a deposit of salts from a hot solution as the liquid cools; the deposit being easily redissolved by heating the urine, when it regains also its original transparency. It is the persistence, or at

all events frequency, of occurrence of the above symptoms which taken collectively mean an unduly large production of the mixed urates (urates of soda, potash, lime, etc.), and in time the arrival also of little crystals of uric acid, looking like particles of Cayenne pepper or red brick-dust, at the bottom of the vessel, which denote an undue tendency to produce uric acid, either inherited or acquired. We grant the possibility, indeed the probability, of this being an acquired condition, or the preexistence of an intensified habit; indeed, it is often the result solely of improper diet and regimen.

Let me again insist that this may occasionally happen with the most healthy individuals; and it is only the persistence of the symptoms, without any flagrant errors of diet, which should lead one to suspect it to be a constant condition that requires medication.

We have now followed the complaint up to the formation of Cayenne pepper crystals. This deposit consists mainly of transparent rhomboidal uric acid crystals, and is to be regarded as a pathological change. In healthy urine uric acid exists only in combination, and is not found free, except possibly in the smallest amount (three to ten grains per twenty-four hours), at the moment it is voided. Patients who periodically pass large quantities of this material not infrequently experience pain in the back, or over one hip, with darting pains extending to the groin or testicle, and accompanied perhaps by nausea; and he may then be said to have a mild attack of gravel. Occasionally these symptoms are much exaggerated, and it is then said of the patient that he is passing through the stage denoting the passage of a renal calculus. Have not these patients been the subjects of a "uric-acid storm?"—to use the words of Sir Henry Thompson. These phenomena become more frequent or severe, unless the patient does something to prevent their occurrence. Subsequently he may pass very small calculi. Later on these rounded bodies tend to become as large as peas. In the cases where excruciating pain accompanies their transit from kidney to bladder, some signs of it are generally manifest in the urine by the presence of blood—"coffee grounds"—and a smaller quantity than normal.

That there exists a relation between gout and uric acid deposit is aptly depicted in the alternating of these two complaints, comparing one generation with another; gout, in its ordinary form of attack in the great toe,

appearing in the one, gravel in the second, and gout again in the third. This characteristic may exist in the same individual, however, for I have seen a patient who had suffered for years from gout become suddenly free from his attacks without known cause for several months, when he developed for the first time a uric acid stone in the bladder. The identity of gout and uric acid gravel I believe to be probably unquestionable; they constitute two different series of phenomena, but both arise from an overproduction of uric acid compounds coupled with an inability of the system to properly eliminate the same.

It is not my purpose to discuss here the numerous theories advanced concerning the formation and excretion of uric acid, save to say that it is generally agreed that it is formed within the tissues and is gotten rid of by the kidneys; also that experimental research seems to support Minkowski's view that it is also formed within the liver.

Now, what is the best procedure to institute with those patients who persistently pass Cayenne pepper crystals of uric acid or minute calculi? The question of avoiding or anticipating the arrival of at least the advanced condition—namely, that of calculi too large to be voided by the patient—seems to be the abstruse answer. Generally speaking, I think such patients come under observation in a tolerably early stage, although it is obvious that this is not always the case. Some are unnecessarily alarmed when the urine is only occasionally thick with urates. We must ever keep in mind the fact that sand, gravel or calculus can only be formed when the solution is maintained by undesirable circumstances in a too concentrated state. Under these circumstances the excessive acidity is of itself a natural sign of the presence of a large amount of uric acid. Although the bladder is commonly quite tolerant of a full acid condition of its contents, nevertheless the presence of a full proportion of acid has come to be regarded as sufficing to establish an almost universally adopted principle of treating the complaint (with continuous use of alkalies). If treated at home the patient is usually given bicarbonate or citrate of soda, potash or lithia; or perhaps benzoate of ammonia; or Vichy, Evian or Vals mineral waters (carbonate of soda); or some other alkaline drink is consumed in large quantities. Or, perhaps the patient is sent to drink the waters on the spot. "Carbonate of soda is the chief alkali

in the majority of natural alkaline waters" (Sir Henry Thompson), and the consequence is that if enough be imbibed the urine will clear up and become less irritating; and uric acid will no longer be deposited. But is not much more to be desired than merely to hide from view the enemy—uric acid being quite soluble in an alkaline fluid? The enemy is there, for you have not checked the acid formation. The uric acid is there, and probably in as large quantity as ever; for you have only rendered it and the urates invisible in the alkaline media. The surplus deposits have become unrecognizable by vision—nothing more. Alkalies in moderate amount cannot be said to be of absolutely no use as regards the constitutional state; but that they will not improve it to any great extent, and that when withdrawn the acid will show itself again, is the history of such cases. As to curative value, the diuretics are of no more avail. They increase the secretion of water and the solids are thus dissolved, while the perhaps already overworked kidneys are stimulated—goaded—to do still more.

Before delineating a line of treatment different from that which I have just chosen to criticize, I realize the advisability of my premising that the origin of those familiar symptoms which all agree to recognize as gout, as well as of a superabundant uric acid deposit in the urine, is due to defective assimilation on the part of organs associated with or forming the *prima via*. At the foundation of this tendency to uric acid production exists what we may understand as inactivity of the liver and skin. Insufficient work on the part of these necessarily entails unusual activity of the kidneys. Thus some of the ordinary constituents of which the solid matters of the urine are composed are augmented—not all of them, for urea is not necessarily increased; but uric acid is largely produced, and is eliminated not only in solution but in the form of crystals. When the amount of uric acid increases much above the normal and the ordinary amount of urine is present, it will not suffice to dissolve the whole, and solid uric acid is deposited in some part of the urinary channel. If this be a correct conclusion the formation of uric acid gravel is not by any means to be regarded as necessarily a kidney disease, but rather the result of an active organ vicariously relieving some other organ the function of which is torpid. The true remedy, therefore, is not to stimulate the kidneys, already overworked, by diuretics, etc., but to

look to the results attained from increasing the activity of the liver.

The most rational treatment, therefore, I believe to exist in the exhibition of such agents as will stimulate the excretory action by the *prima via* without depressing vital power. No doubt that a powerful agent for the purpose is mercury; and it is quite undisputed that relief of the symptoms above alluded to is to be obtained in a remarkable manner by the occasional use of blue pill combined with compound extract of colocynth. It is not always necessary to use mercury, however. Nature has wisely provided us with certain kinds of mineral waters, whose constituents far surpass for prolonged use either mercury or the "substitutes for mercury" (taraxacum, nitric acid, podophyllin, and the alkalies), in what is called "promoting the action of the liver." I refer to meritorious natural mineral waters—medicaments prepared deep down in the bowels of the earth by an omnipotent and inimitable pharmacist, with medicinal powers for which the physician can find no substitute, or the druggist duplicate. The mineral waters which give us best satisfaction in hepatic torpor are those marked by the common and distinctive characteristic of containing in solution sulphate of soda in considerable quantity, varying proportions of sulphate of magnesia and less important salts. The saline combinations found in natural springs have certain marked advantages over the pharmaceutically crystallized salts or those reduced by ordinary commercial processes. The advantage exists principally in the superior potency of the product from Nature's laboratory. The usual dose of sulphate of magnesia may be said to be half an ounce, but the same effect will be obtained with one-third or one-fourth of that quantity if taken in the form of mineral water. I refer to natural mineral water, for "artificial waters," however admirably prepared, are simply pharmaceutical products, and are destitute of a remarkable quality which distinguishes the remedies they are designed to imitate.

These waters are classified as the "saline purgative" and "saline aperient" groups, and should contain not less than two drachms of sodium sulphate and not less than one and a half drachms of magnesium sulphate to the pint. The best known aperient saline waters contain 150 to 154 grains of the former and 116 to 148 grains of the latter to the pint, with practically no carbonate of soda and little iron or other ingredients. Six to eight

ounces of the best of this class of waters is for the adult an average dose, and should be warmed and diluted by adding, say, a third or a half of its bulk of hot plain water. Certain of these waters are so concentrated as only to require one-third to two-thirds of the quantity above named, which has reference to the average of this class of waters; and I certainly think them preferable when accessible. If, then, a dose of either be taken in the early morning, an hour before breakfast, which should be a light meal, a full free action of the bowels will probably follow soon after. There is something which I do not pretend to explain, and certainly shall not speculate about here, which distinguishes the action of mineral waters from the action of salts which are found on our druggists' shelves. This difference is aptly depicted in the clinical manifestations; for if you evaporate a quantity of, say, Hunyadi water in a warm water-bath so as to avoid decomposition of the salt, and retain the water of crystallization, thus obtaining as perfect a product as a chemist can produce, and administer three times as much of this salt as that which exists in a dose of the natural water, you will probably not produce such efficient or certain results as the small quantity contained in the natural water insures.

Now, the principle upon which the waters of the sulphate of soda group, aperient or non-aperient, are beneficial, is that they produce activity in all the digestive functions, stimulating the excretory action of the abdominal organs, so that certain waste matters which have been hitherto thrown out as uric acid by the kidney are eliminated in some other form. It may also be said of these waters that their use can be kept up indefinitely without an increase of dose, which is certainly an important and valuable characteristic in any therapeutic agent. This system of treating a constitutional tendency to excrete uric acid in abnormal quantity, whether in the form of gravel or by the less obvious course of gouty attacks in all their varied manifestations, seems to me to have earned a right to be considered prophylactic and eminently successful, and can be more favorably pursued at home, provided certain accompanying advantages can be secured, than by sending the patient abroad. It is desirable to secure, during a course of waters at home, at least regularity of meals, scrupulous attention to diet and habits of life, and if possible to insist upon a long continued

use of the water. Moderation in diet is probably of more importance than exclusion of any particular kind of food. Milk diet, if it could be maintained a long time, would probably be the best of any exclusive diet, and should form an important part of any mixed diet. The two classes of food which it will be best to eliminate from the dietary are fatty matters and saccharine products of all kinds—the former not entirely, the latter as completely as possible. Alcoholic drinks of all kinds are, I believe, invariably pernicious in all such disorders presenting the symptoms before described as depending upon a "torpid liver," and therefore should be forbidden.

*Summary.*—The points which I wish to emphasize are as follows:

1. Calculi are of local or constitutional origin; and those depending upon a constitutional diathesis are greatly in the majority and are the ones to which I refer in particular.

2. Since uric acid forms the basis of the vast majority of calculi of constitutional origin, the question of preventing the formation of gravel resolves itself largely into one of regulating the production of uric acid and favoring its elimination from the system.

3. The true *rationale* of the unduly large formation of the urinary salts appears to be due to an inefficiency in the excreting power of the skin and liver; and the kidneys have more work than is natural thrown upon them. Uric acid is largely produced and is eliminated not only in solution but in crystalline form.

4. Alkalies and diuretics will not improve the constitutional state involved in stone formation to any great extent, and there is reason to believe that large quantities habitually taken exercise an undesirable influence, especially upon the kidneys.

5. The long-continued daily use of certain saline aperient natural mineral waters of the sulphate of soda group is beneficial in calculous disorders because they produce activity in all the digestive functions and stimulate the excretory action of the abdominal organs to the end that certain waste matters which were previously thrown out as uric acid by the kidney are eliminated in some other form.

6. Sulphate of soda is one of the most excellent therapeutic agents we possess, and deserves to be more popular than it is; but it is not as potent in the form of the commercial salt as in the form of natural mineral

water, nor can it be given continuously without increase of dose except in the form of the waters above mentioned.

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THE CONSERVATIVE TREATMENT OF  
FIBROID TUMORS BY MYO-  
MECTOMY.\*

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The operative treatment of fibroid tumors has developed through several stages. In the beginning the removal of the tumor only was attempted. This method of operation was employed because it was considered the simplest and safest, and not from motives of conservatism. At a later date the uterus was removed together with the tumor or tumors, because it was believed to be a safer method of operation than the removal of the tumors alone. Still later the removal of the ovaries was employed to bring about the artificial menopause, and thus promote the involution of the tumor. This method was employed also upon the ground of the relative safety of the procedure.

In the development of the technique of these methods of operation the advantages of hysterectomy over the removal of the ovaries have become manifest, and this is the usual method of election. In a certain class of cases it has been demonstrated that the removal of the tumor itself (myomectomy) is a safer operation than the removal of the uterus with the tumor or tumors (hysterectomy). In the recent past true conservatism—that is, the welfare of the patient—has required the selection of one or other of these methods of operation, depending upon the nature of the case. The technical details of operation for fibroids have been so perfected, and the safety of these operations has been so greatly increased, within the past few years that it has become possible to advance conservatism a step forward, and to view the removal of fibroid tumors from a higher standpoint. Undoubtedly the ideal method of treatment of fibroid tumors is to remove the tumors while retaining the organs of generation and the functions of menstruation and procreation. This must be accomplished by broadening the field of myomec-

tomy and restricting that of hysterectomy. The object of this paper is to discuss the present status of myomectomy, and to advocate such changes in practice as will render this conservative operation applicable in many cases in which it is now necessary to resort to hysterectomy.

The first myomectomy was performed by Amussat (Memoir upon the Pathological Anatomy of Fibrous Tumors of the Uterus, etc., Paris, 1842) June 11, 1840. The tumor was a submucous fibroid in the early stages of the process of being extruded from the uterus by the contractions of that organ. Amussat performed his second operation in 1841 (*loc. cit.*, p. 41). Both tumors were removed *per vaginam*. They were not only the first myomectomies, but aside from the removal of fibroid tumors which had become polypoid and extruded into the vagina, they were the first fibroid tumors to be removed. In these operations there was no question of conservatism in the modern sense of the term. Myomectomy was performed instead of hysterectomy simply on the ground of the relative safety of the two operations; hysterectomy was yet unborn.

Washington L. Atlee was the next surgeon to perform myomectomy, and the first to systematically and continuously advocate the removal of these tumors upon scientific grounds. Atlee's first myomectomy appears to have been done for a pedunculated fibroid tumor, which was removed by celiotomy August 28, 1844, with a diagnosis of ovarian tumor. This diagnosis was corrected at the autopsy several years subsequently, when both ovaries were found *in situ* (Atlee, Ovarian Tumors, p. 249).

Atlee's first myomectomy performed *per vaginam* is recorded in his prize essay (The Surgical Treatment of Certain Fibrous Tumors, etc., *Trans. Amer. Med. Assoc.*, 1853, p. 559). The operation was begun May 8, 1845. The tumor was removed piecemeal at different times. The patient died July 16 of pneumonia. Atlee continued to operate *per vaginam* and by abdominal section, and in 1853 reported fourteen cases (*loc. cit.*). A study of Atlee's very full report of these cases is most interesting, and serves to increase one's respect for this great man, who was even more a pioneer in the surgical treatment of fibroid tumors than in ovariectomy.

It is beyond the scope of this paper to refer to numerous surgeons who advanced the operative treatment of fibroid tumors in its early stage. It must suffice to refer to a

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\* Read before the Pennsylvania State Medical Society, May, 1898.

few of those who have aided in the perfection of myomectomy. Emmet working over many years perfected a method of removing intra-uterine fibroid tumors by making traction upon the tumor, and removing the tumor by cutting it up with scissors. This method was probably the basis from which developed the modern method of morcellement as applied to operations for fibroids. There is the essential difference, however, that while Emmet used the method in the performance of myomectomy, the French school have used it in the performance of hysterectomy.

A. Martin, of Berlin, in 1886 (*Diseases of Women*, American edition, 1890, p. 280), performed myomectomy for an intra-uterine tumor by the abdominal route. He states: "The great tumor was extruded from above after laparotomy and incision of the uterus. Its bed was cleansed and the uterus sutured. The union and involution of the uterus proceeded in a thoroughly satisfactory manner." This is probably the first case in which a myomectomy was done by the abdominal route for an intra-uterine tumor. Numerous pediculated tumors had been removed by abdominal section, and as early as 1853 Atlee had removed a sessile subperitoneal fibroid tumor by myomectomy (*loc. cit.*, p. 548). Martin has been a constant advocate of myomectomy for intramural fibroids upon the ground of conservatism. His advocacy of myomectomy had less weight than it otherwise would have had, because the results which he obtained were less favorable than those obtained at the same time by the adherents of hysterectomy.

No other surgeon can be specially singled out as having advanced the operation of myomectomy, but with the perfection of abdominal surgery it became possible to substitute myomectomy for hysterectomy in many cases without increasing the primary mortality of the operation, and with the great gain of conserving the organs of generation. Numerous operators, especially in this country and in Germany, embraced the opportunity to extend the field of conservative surgery. At the present time much thought is being given to the best method for broadening the indication for myomectomy. Early operation for fibroid tumors heretofore has been advocated in order to lessen the mortality of hysterectomy, the basis of its advocacy being that hysterectomy has a lower mortality than fibroid tumors when these are not removed by operation. In estimating the comparative mortality of hysterectomy

and fibroid tumors without operation, the fact must not be lost sight of that fibroid tumors are very frequently complicated by other morbid conditions, such as ovarian tumors, pyosalpinx, inflammatory disease of the uterine appendages, necrotic degeneration of the tumors, cystic degeneration, sarcoma, calcareous degeneration, and in a small percentage of cases carcinoma of the body of the uterus or of the cervix is present. The mortality of the complications alone in a given class of cases is greater than the mortality of hysterectomy, leaving aside the inherent mortality due to the tumors themselves.\*

An even stronger ground for the advocacy of early operation is the fact that myomectomy can be much more frequently substituted for hysterectomy. In my own work almost exactly twenty per cent. of the operative cases have been dealt with by myomectomy.

Certain considerations control the indication for myomectomy. The primary purpose of myomectomy is the conservation of the functions of menstruation and procreation, therefore it follows that the age of the patient and the desirability of child-bearing are the main factors in determining the indication for this operation. In women who are approaching the menopause nothing is gained by substituting myomectomy for hysterectomy. Aside from these relative indications the nature of the growth is the absolute indication for or against myomectomy. Typical cases for myomectomy are those in which but a single tumor is present, and favorable cases are those in which the number of tumors is small. When the number of tumors is great, the desirability of the operation becomes less because of the greater technical difficulties of the operation and the

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\*In a study of my own experience in fibroid tumors (*The Development and the Present Status of Hysterectomy for Fibromyomata, Trans. Amer. Gynec. Soc., 1897*), among sixty-six cases of fibroid tumor for which hysterectomy was done, the following complications were met with: Cystic degeneration, 3; calcareous degeneration, 3; sarcomatous degeneration, 3; necrosis of the tumor, 2; bilateral hydrosalpinx, 4; unilateral hydrosalpinx, 4; bilateral pyosalpinx, 4; unilateral pyosalpinx, 2; unilateral ovarian cyst, 4; bilateral dermoid ovarian cyst, 1; parovarian cyst, 1; ovarian cyst, ruptured tubal pregnancy, appendicitis, 1; intraligamentous development of the tumor, 6. I reported also three cases of cancer of the cervix complicating fibroid tumors, in which hysterectomy was not performed. Also, of seventeen fibroid tumors which had been removed *per vaginam*, five were necrotic. In my experience about seven per cent. of the fibroid tumors upon which I have operated have been necrotic.



increased risk attending it. When the uterus is studded with fibroid tumors, the operation is contraindicated, because of the impossibility of removing all of the growths and the probability that some of those remaining will continue to grow and require subsequent operation.

Myomectomy may be performed either by means of the abdominal or vaginal route. The cases best suited for the abdominal route are subserous and intramural fibroid tumors. When of large size submucous fibroid tumors also are best attacked from above. The essentials for success in myomectomy are perfect asepsis and hemostasis, in addition to a good surgical technique. Operators whose facilities do not afford these requirements should not undertake the operation. The technique of the operation is comparatively simple. The capsule of the tumor is incised and the tumor peeled out from its bed. When the capsule is large, this must be trimmed so as to facilitate the closure of the wound. The wound is then closed by continuous catgut suture, as many tiers of sutures being used as necessary to obliterate the bed of the tumor and to secure perfect hemostasis. The peritoneal covering of the uterus is closed in the usual manner. When the tendency to oozing is marked, the use of mattress sutures is of great service. The ligation of one or more of the four arterial trunks supplying the uterus is admissible when otherwise hemostasis is impracticable. The use of catgut prepared by the cumol method has given me much satisfaction.

The vaginal route is best adapted to the removal of submucous fibroids, cervical fibroids, and small subserous fibroids situated upon the anterior wall of the uterus. This latter class of fibroids is best attacked by anterior colpotomy. Through the vaginal wound the uterus is anteverted into the vagina, the tumor enucleated, and its bed sutured as in abdominal myomectomy. The vesical peritoneum is then sutured to the uterus above the wound in the uterus, and the vaginal incision closed. Cervical fibroids can be reached by splitting the cervix and enucleating them. Depending upon the location and size of the tumor, the method of operation must be varied in different cases. In some of the cases the anterior lip of the cervix may be split antero-posteriorly, in others the posterior lip. In a number of cases I have split the cervix bilaterally, enucleated the tumor, sutured its bed, and then closed the incisions in the cervix. Submucous fibroids

may be reached in two ways. The usual method, and the one which I have employed, it to split the cervix bilaterally up to and beyond the internal os. With care it is possible to avoid wounding the uterine artery and vein. This accident has never happened in my cases. Should it ever occur, the vessels would require ligation as in vaginal hysterectomy. After splitting the cervix the cavity of the uterus can be dilated with dilators, and the tumor seized with vulsellum forceps. If polypoid and of moderate size, it should be drawn down and the pedicle divided with scissors. When of larger size and not polypoid, the capsule must be incised and the tumor enucleated with the finger or some blunt instrument. Tumors of large size are best delivered by traction and morcellation, in accordance with the method advocated by Emmet. The capsule of the tumor left after its removal should be trimmed so far as possible with scissors. In my experience hemorrhage after the removal of fibroid tumors *per vaginam* has been trifling; but should it prove troublesome, it should be controlled by packing the uterus with gauze. It is conceivable that it may be sufficiently troublesome to require hysterectomy. After the removal of the tumor, the cavity of the uterus should be lightly tamponed, and the cervical incision united with catgut sutures reenforced with silkworm-gut, so that the gauze may be removed without risk of tearing open the cervix.

Anterior colpotomy followed by splitting of the anterior wall of the cervix and uterus up to and, if necessary, beyond the reflection of the vesical peritoneum has been recommended as affording ready access to submucous fibroid tumors. I have never employed the method, but theoretically it should afford ready access to intra-uterine tumors. My own experience with splitting the cervix bilaterally has been quite satisfactory, but it is quite apparent that the risk of wounding the uterine vessels is greater by this method than by anterior colpotomy. On the other hand, anterior colpotomy presents the objection that there is more likelihood of invading the peritoneal cavity by this method.

My own experience with myomectomy embraces twenty-five cases, in eight of which the operation was done by abdominal section, and in seventeen *per vaginam*. All of the patients made good recoveries. In none of the cases so far as known have fibroid nodules developed since operation. Three of the patients are known to have become pregnant

and given birth to children since their operations. One patient gave birth to twins.

The results of myomectomy in my hands have been most satisfactory. The primary mortality has been *nil*, the recovery from operation in almost all cases has been uncomplicated, and the result of the operation has been satisfactory in every case. A number of the patients were extremely ill when operated upon, due to long-continued hemorrhages and to infection or sloughing of the tumor brought about by the efforts of the uterus to expel the tumor *per vias naturales*. Three of these patients were dangerously ill from anemia and septicemia. It cannot be expected that a *nil* mortality will be obtained in a large series of cases of myomectomy, but the mortality should be lower than that of hysterectomy for fibroids. Cases suitable for myomectomy on the whole are more favorable for operation than the average cases of fibroid tumor. Cases suitable for hysterectomy include all the cases having serious complications. Cases suitable for myomectomy are seldom in desperate condition, the exceptions being those suffering from severe anemia due to long-continued hemorrhages or to infection of intra-uterine fibroid tumors.

In conclusion, I wish once more to express the opinion that the next advance in the treatment of fibroid tumors will be the general adoption of early operation and the more general substitution of myomectomy for hysterectomy as being the most conservative treatment of these growths.

#### TREATMENT OF GRIPPE.

We have already quoted the treatment given by LYON for certain of the symptoms of influenza. He also gives the following prescriptions for additional complications. For the coryza, particularly if it is marked and the discharge purulent with or without epistaxis, he employs the following:

- ℞ Vaseline, 2 ounces;  
Boric acid, 2 drachms;  
Menthol, 7 grains.

A little of this is placed in the nostril by the finger five or six times a day, or the following powder may be used:

- ℞ Boric acid, 2 drachms;  
Menthol, 2 grains;  
Hydrochlorate of cocaine, 1 grain.

A small pinch of this is snuffed up the nostril a few times a day. If irrigation of

the nasal cavity by means of hot boric acid water is needed, it should be done with care lest infection of the Eustachian tube take place. For the sore throat and laryngitis he recommends hot water compresses to the throat. Inhalations of steam laden with the following drugs, which are placed in the hot water, are useful:

- ℞ Alcohol (70-per-cent.), 1 ounce;  
Menthol, 15 grains.

A teaspoonful of this is to be added to a pint of hot water, and at the same time another teaspoonful of benzoin may be poured in and the steam inhaled. Sometimes gargling with very hot water, to which has been added boric acid, is useful, or two teaspoonfuls of the following mixture may be placed in hot water and used as a gargle:

- ℞ Bromide of potassium, 1 drachm;  
Hydrochlorate of morphine, 2 grains;  
Antipyrin, 30 grains;  
Hydrochlorate of cocaine, 2 grains;  
Distilled water, 2 ounces.

In the early stages of the bronchitis without expectoration, but with cough, cherry-laurel water, paregoric, tincture of hyoscyamus, aconite or benzoate of sodium are useful. The following may be prescribed:

- ℞ Fluid extract of hyoscyamus, 1 drachm;  
Cherry-laurel water, 3 drachms;  
Syrup of tolu,  
Syrup of orange flowers, of each 6 drachms;  
Syrup, 4 ounces.

A dessertspoonful every two hours.

Or,

- ℞ Dover's powder, 30 grains;  
Powdered squill, 20 grains;  
Quinine sulphate, 30 grains.

Make into 20 cachets and take three to five a day.

Or the following may be employed:

- ℞ Hydrochlorate of morphine, 1 grain;  
Hydrochlorate of cocaine, 2 grains;  
Antipyrin, 30 grains;  
Water, 4 ounces.

Three or four teaspoonfuls a day in a little hot whiskey or rum.

For bronchitis with abundant expectoration:

- ℞ Terpene hydrate, 4 grains;  
Glycerin and syrup, a sufficient quantity to make one pill.

Three to five a day.

Or,

- ℞ Terpene and benzoic acid, of each 2 grains;  
Dover's powder, 1 grain.

Make into one pill and take six a day.

—*Revue de Thérapeutique Médico-Chirurgicale*, February, 1898.

# The Therapeutic Gazette

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## Leading Articles.

### THE NORMAL GASTRIC MOVEMENTS.

Notwithstanding the very numerous studies which have been made during the past ten years upon the processes of gastric digestion and upon the movements of the stomach, there yet remain large open spaces in our knowledge of the two physiological processes which we have named. The fact that the stomach is an internal organ which cannot readily be observed in its physiological activity has forced us to rely upon results obtained by the use of the gastric tube, or by the passage of esophageal and gastric bougies which have given us indefinite information; and yet as a matter of fact, physiologists have from the earliest times been interested in the two questions of gastric digestion and gastric movements. With the employment of the Roentgen rays in medicine new possibilities for the study of the action of internal organs have presented themselves, and some of the most useful results so far obtained in clinical medicine and physiology, from the use of these rays, are to be found in a paper con-

tributed by Dr. W. B. Cannon in the *American Journal of Physiology* for May, 1898.

His experiments consisted in administering to cats food which had been mixed with subnitrate of bismuth, which latter substance is impervious to the Roentgen rays, and, by giving a sufficient quantity of food to practically fill the stomach, changes in the contour of this viscus were of course represented with the changes in the shape of the bismuth-laden food mass. A large number of animals were observed over a considerable period of time, and Cannon finds that the stomach consists, physiologically, of two distinct parts, the pyloric part and the fundus; and that over the pyloric portion when food is present, constriction waves continually course towards the pylorus. On the other hand, the fundus is an active reservoir for the food, and when salivary digestion is advanced this reservoir squeezes its contents out into the pyloric area. For a thorough understanding of his paper it is necessary for us to remember that he makes the following divisions of the stomach, namely, the cardiac portion, which extends from the left edge of the stomach half across its length, and the pyloric portion, which extends from this point to the beginning of the small intestine. This pyloric portion is, however, divided into two parts—the antrum, which is just at the beginning of the small intestine, and the preantral portion, which extends from the middle of the stomach nearly to the pyloric opening.

Cannon finds that the stomach is emptied of food by the formation, between the fundus and the antrum, of a tube along which constriction waves pass; that the food in the fundus is pressed into this tube and the tube and antrum slowly cleared of food by means of constriction waves. In other words, the pyloric half of the stomach, called the preantral portion, forms itself into a tube which conveys food from the fundus to the pyloric orifice. But the process of propulsion is not all from the fundus towards the pylorus. On the contrary, the food having passed through the tube in the preantral portion is once more pressed upon in such a way that the food returns backward along the path which it has followed and thus becomes thoroughly mixed with gastric juice, so that while its progress is ultimately towards the pylorus, this progress is for a time oscillating in character.

Again, he finds that the pylorus does not open at the approach of every wave bearing food, but only at irregular intervals, and, still

more interesting, that the arrival of a hard morsel causes the sphincter to open less frequently than normal and thereby the passage of the already liquefied food is delayed, for the solid food remains in the antrum to be rubbed by the constrictions until triturated into small particles, which are softened by the gastric juice. If, however, the morsel is too hard to be softened and digested in the stomach, it ultimately escapes into the intestine. Of still greater interest in connection with these studies are the observations which Cannon has made concerning the function of the fundus of the stomach. He finds that food in this portion of the viscus is not moved by peristalsis and is not mixed with gastric juice, but that the fundus forms a sort of pouch in which salivary digestion of the starches and general softening and maceration of the food can be carried on for a considerable period of time without being stopped by the acid gastric juice. This result is of interest, as it explains the clinical fact that both taka-diastase and pancreatin are known to carry on their digestive function in the stomach for a considerable period of time after food is taken, although theoretically the acid gastric juice should inhibit the activity of the pancreatin, at least. It also explains an interesting fact which the writer of this editorial has noticed in a number of cases, namely, that the stomach seems to possess the ability of retaining certain articles and of passing others into the small intestine. Thus if a purgative is taken after food has been swallowed and a copious movement of the bowels is produced within a few hours—as it is, for example, after the use of a saline purgative—none of the undigested food, at least in the normal individual, escapes from the bowel, whereas mucus and other materials are frequently washed out. In other words, it has seemed to the writer that the alimentary canal possesses a selective ability whereby it retains substances with which it has not finished its physiologic function and passes on those which do not need to be retained in the stomach.

We are wont to hear a great deal at this time of nervous dyspepsia, and undoubtedly nervous dyspepsia arises from the fact that so much nervous energy is expended in the ordinary pursuits of life that a sufficient amount is not reserved for the processes of digestion, and as a result digestion is impaired or entirely prevented. Cannon's studies indicate the fact that marked nervous excitement also inhibits the movements

of the stomach. Thus Cannon found, when the cats upon which he experimented became irritable or showed any signs of distress, the digestive movements of the stomach were at once stopped, but as soon as the animals were soothed or their anger appeased, the digestive movements already described at once reasserted themselves.

It is studies such as these of Dr. Cannon which attract the practising physician to the study of physiology, a department of medicine in which many practising physicians are woefully ignorant because they do not understand the direct bearing of physiological knowledge upon the practise of medicine. Much of the so-called physiology taught in the medical schools is theoretical or so deep as to seem to have little bearing upon bedside experience, and we welcome these studies which, while scientific and accurate in the realm of physiological science, are also productive of increased knowledge which may prove of value to the sick.

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*THE VALUE OF METHYLENE BLUE IN  
THE TREATMENT OF ACUTE  
GONORRHEA.*

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A few years ago a substance known as pyoktanin was widely employed, in the treatment of the various septic conditions, as a mild germicide. It was also used as an antiseptic in various ailments and found favor in the eyes of many practitioners. A great difficulty with its general use was the deep staining of everything with which it came in contact, and this doubtless, more than any other reason, has prevented pyoktanin and similar drugs nearly related to it from being employed as widely as would otherwise be desirable. At the present time it would seem that methylene blue finds its chief usefulness in the treatment of malaria, when quinine cannot be taken, in the cure of severe neuralgia, and in the treatment of acute gonorrheal urethritis. Our attention has been called to the latter use of it by a paper recently published by Dr. Orville Horwitz, of Philadelphia, who has employed methylene blue in 105 cases of this disease with very satisfactory results, not only clinically, but also bacteriologically, in that examinations of the secretions and pus from the urethra show that the methylene blue exercises a distinct influence upon the gonococcus.

The dose of methylene blue which he used was two grains two or three times a day, but it is to be noted that about one-fourth of the

cases taking this suffered from slight diarrhea and strangury, under which circumstances the dose was decreased about one-half, and never did one-grain doses produce unpleasant result. Naturally the two-grain doses were more efficient when they were well borne by the patient. In all instances the urine became a deep blue hue owing to the drug being eliminated by the kidneys. Dr. Horwitz states that in four or five days the pronounced purulent discharge was changed to a slight mucoid excretion with a modification in all the inflammatory symptoms. The best method of administering methylene blue in Dr. Horwitz's opinion is in the following formula:

R Methylene blue, 2 grains;  
Oil of sandalwood, 3 grains;  
Oleoresin of copaiba, 3 grains;  
Oil of cinnamon, 1 drop.

Mix. Dispense in capsule. One dose.

In addition to this capsule internally permanganate of potassium solution was employed for irrigation purposes, beginning with a strength of 1:2000 and gradually increased until the preparation reached 1:1000. Dr. Horwitz concludes his paper by the following summary, which expresses his opinion as to the value of this method of treatment:

1. That methylene blue is a germicide of great value in cases of acute urethritis, due to the presence of gonococci.
2. That it will not abort the disease, but will materially shorten its duration.
3. That it markedly lessens the tendency to complications.
4. That it is not to be employed in the treatment of acute urethritis, unless a bacteriologic examination demonstrates the existence of gonococci.
5. That the remedy should be employed as soon after the infection as possible.
6. That the proper dose with which to begin treatment is one grain three times daily, to be increased to two grains if the remedy is well borne.
7. That the beneficial action of methylene blue is enhanced and the duration of the disease is shortened by combining it with copaiba, sandalwood, and salol.
8. That the injections of potassium permanganate by means of a hard syringe, or if possible by irrigation, administered in the early stages of the disease, and followed during the period of decline by an astringent injection, have a marked tendency to lessen the duration of the malady.
9. That methylene blue always has the effect of turning the urine to a deep blue

color. Of this fact the patient should always be informed to prevent unnecessary alarm.

10. That methylene blue is of no service in cases of non-specific urethritis.

#### THE VALUE OF JAMBUL IN DIABETES MELLITUS.

The fact that diabetes mellitus is in some cases a hopeless disease against which both physician and patient struggle without effect causes us to be continually on the lookout for some remedy which can be considered a specific, it being forgotten in many instances that in all probability diabetes is but a manifestation of a series of lesions rather than of a single pathological condition. Recently in the January issue of the *Indian Medical Gazette* Dr. Macphail speaks in a laudatory way of the influence of jambul in the treatment of this malady, although he admits that the patients return to say that while it temporarily relieved them, in many instances the symptoms recurred. In the same journal for March, 1898, Mitra, of Kashmir, in writing about Dr. Macphail's contribution, points out that this drug was first recommended by Banat Walla, whose experiences were recorded, and by Quantjer, of Batavia, and that in the *Practitioner* for January, 1891, Kingsbury and Mahomed published favorable results in isolated instances from its use; so, too, Lewischen in the *Berliner Klinische Wochenschrift* of February 23, 1891, and Dujardin-Beaumetz in the *Bulletin de Thérapeutique* for March, 1891, considered that this remedy in combination with a strict diet was useful in mild cases but useless in severe ones, which is practically equivalent to saying that it is of no value at all, for every one knows that in mild cases dietetics should be given nearly all the credit for any improvement.

Mitra tells us that a careful analysis of a large number of cases in India in which this drug has been tried under the most favorable conditions, the seeds being fresh, shows that it has no claim to be considered a cure for diabetes. He thinks that given a case of ordinary diabetes it may be well to try the fresh seeds with a strict dietary for a short time, and then if no value results we should cease its use at once.

These conclusions reached by Mitra are in accord with our own. In the few instances in which we have given this drug it has failed to produce any material influence.

## Reports on Therapeutic Progress

### *THE USE OF HYDROCYANIC ACID AS AN ANTIDOTE TO CHLOROFORM.*

FREDERICK HOBDAV, a veterinarian, writes a paper on this topic in *The Lancet* of January 1, 1898. He points out that the extreme frequency with which records of death from the anesthetic administration of chloroform appear in the professional journals must make welcome the addition of another antidotal agent to the list of those with which we are already acquainted. The idea of using hydrocyanic acid as an antidote to chloroform first suggested itself to the writer about two years ago when watching the different effects of the two drugs upon the respiratory tract when used to produce death, and particularly from having observed the powerful and rapid excitant result which follows absorption of a toxic dose of the acid. In 1896 there was published in detail a list of some forty-three observations upon various animals, including dogs, cats, a horse, sheep, and calf, showing the results obtained by this method of resuscitation and also a few cases illustrating the palliative and sedative effects produced on the respiratory efforts by chloroform inhalations upon animals suffering from overdoses of hydrocyanic acid. Since then the writer has been able to collect fifteen additional consecutive cases in which it has been successfully used in the college canine clinique after respiration had actually ceased, and he has also had confirmatory reports of its antidotal value from veterinary practitioners in various parts of the country. The results have certainly been in the highest degree satisfactory, so much so that when chloroforming animals the only antidotes they now have at hand ready for use are those of hydrocyanic acid and liquor ammoniæ fortior. As soon as breathing ceases or becomes dangerous artificial respiration is resorted to, the tongue being continuously pulled well forward in a jerky manner and a full medicinal dose of Scheele's acid placed as rapidly as possible at the back of the throat. When respiration has recommenced the ammonia vapor is applied cautiously to the nostrils, and in the majority of cases a safe termination ensues.

The method of artificial respiration preferred is that of laying the animal in a horizontal position on its right side and pressing the ribs in a short, sharp, jerky manner; they have tried everting the body, but the writer

is convinced that this is a bad method in the dog and cat, as the intestinal organs press upon the diaphragm and limit the capacity of the thorax. They have also tried placing the body in the opposite position with the idea of removing all pressure of the abdominal organs from the thorax and its contents, listening carefully at the same time in each case to the heart sounds with the phonendoscope; but he is firmly convinced that the heart sounds are stronger and less labored when the body is placed horizontally.

When reasoned out theoretically, in addition to the results of practical work, hydrocyanic acid stands foremost amongst agents likely to prove of antidotal value; for what more rapid or powerful respiratory stimulant have we? Its use is attended with no more danger than that of strychnine—in fact, in the dog and cat with far less. Its rapidity of action is unquestionable, it is easily absorbed from any of the entrances of the body, and it has the advantage over ammonia that it does not irritate the tissues to which it is directly applied. Besides these things, not only has it an immediate effect in starting the respiratory mechanism, but when once this has commenced the stimulating effect of the acid is maintained for twenty minutes or half an hour and keeps going until the breathing is able to resume its normal aspect and the patient is out of danger. The writer is aware that many cases will recover by the aid of artificial respiration alone, but he is perfectly convinced from tests applied to this point, and from an extensive experience of the results which were obtained with other antidotes before hydrocyanic acid was tried, that the use of the acid gives an enormously higher proportion of successes. When compared with hypodermic injections of strychnine, ether, or saline solution, or the use of amyl nitrite or ammonia vapor, its effect is visibly much more rapid and powerful. Scheele's acid is of course more rapid and powerful than the British Pharmacopœia acid and acts best when given undiluted.

With reference to the method of administration the best way to apply it is undoubtedly by means of a graduated drop-tube on the back of the tongue. Hypodermic injection does not seem to give such good and rapid results, and the direct forcing of the vapor up the nostril by means of bellows is decidedly dangerous from the risk of administering an overdose. Full medicinal doses are necessary, as when an animal is under chloroform the effect of the acid is not visible

quite so quickly as when no chloroform has been used. If an overdose be given the judicious use of the anesthetic vapor will combat and quiet the spasm of the respiratory muscles until the excess of acid has had time to become eliminated from the system. In several cases the writer has had opportunities to test this before experience taught the exact dose. This latter averages in the dog and cat about one minim of Scheele's acid for every seven or eight pounds of live body weight. The object must be to give just enough acid to produce the preliminary excitant effect upon the respiratory center, and of course, like all antidotes, the sooner it is administered after dangerous symptoms have appeared the more likely is the result to be favorable.

#### THE USE OF VENESECTION.

*La Presse Médicale* of February 2, 1898, tells us that HERVIEU has reported to the Académie de Médecine of Paris that he has employed blisters or scarification to the abdominal wall with great success in the treatment of puerperal peritonitis. He has never seen the use of blisters produce nephritis or urinary symptoms.

[We doubt whether this treatment will be serviceable.—ED.]

#### THE TREATMENT OF CARDIAC COMPLICATIONS IN PREGNANCY.

In *La Presse Médicale* of February 2, 1898, VACQUEZ and MILLET give the following directions:

For the prevention of accidents from cardiac disease in gravid women two indications are necessarily carried: First, rest in bed; second, an absolute milk diet. These prescriptions should be adhered to for the period of five or six months; only a sufficient quantity of exercise being taken each day to maintain the health, and the heart being given a rest during the remainder of the twenty-four hours. Should there be any evidences of scanty urinary secretion theobromine may be given as a diuretic, and it may be necessary to give saline purgatives to relieve the bowels or the kidneys. These may be given every three or four days. Should the symptoms of cardiac disease manifest themselves in asystole, anasarca, hepatic and renal congestion, then digitalis in fractional doses employed as an infusion may be resorted to with advantage. At the same time it may be

necessary to use venesection or active saline purgatives. Should there be pulmonary congestion, as a result of cardiac lesion, venesection, hot applications to the chest or wet cups may be needed. Theobromine should be given to stimulate the kidneys, and fractional doses of Dover's powder may be used with excellent results. Should the symptoms become very grave we may induce labor, using chloroform in small quantities and supporting the heart by preparations of digitalis. Although chloroform is supposed to be a cardiac depressant its use probably puts aside more danger than it itself causes, particularly if the heart is protected by doses of digitalis. So far as the prophylaxis of cardiac disturbances in pregnancy are concerned the authors quote Peter as having forbidden women with cardiac affections to marry. He, however, makes this rule: Permit marriage if the cardiac lesion is simple and there is no asystole. Oppose marriage if the cardiac lesion is complicated or associated with asystole, or if evidences of mitral regurgitation are marked.

#### THE LOCAL TREATMENT OF ACUTE ARTICULAR RHEUMATISM.

*La Presse Médicale* of February 5, 1898, gives the following treatment for this condition: The local use of an ointment composed of liquid vaselin one ounce, salicylate of methyl half an ounce; this is smeared upon lint and bound about the joint, and the lint is now in turn covered with gutta-percha. In other cases an ointment composed of salicylic acid, as follows, may be used:

- ℞ Vaseline, 1 ounce;  
Salicylic acid, 45 grains.

In still other instances salicylic acid can be gotten into the system through the skin by the following means:

- ℞ Salicylic acid, 1 drachm;  
Salicylate of sodium, 60 grains;  
Extract of belladonna, 15 grains;  
Vaseline, 1 ounce.

This is applied in the same way as the ointment of the salicylate of methyl.

Salol is said to be especially useful in gonorrheal rheumatism. It may be dissolved in ether and used in the following prescription:

- ℞ Salol, 1 drachm;  
Menthol, 30 grains;  
Ether, 1 drachm;  
Lanolin, 1 ounce.

Guaiacol when locally applied is also a powerful pain reliever as well as an antipy-

retic. It may be painted upon the part in the following solution:

- ℞ Pure guaiacol, 1 drachm;  
Alcohol (85-per-cent.), 1 ounce.

One-fourth of this mixture is sufficient for one application. Too frequent application of it will cause too great a decrease in temperature. After it is applied the part should be covered by an air-tight bandage. The following ointment may be used in its place:

- ℞ Guaiacol, 1 drachm;  
Vaselin, 1 drachm.

Or the following used:

- ℞ Guaiacol, 1 drachm;  
Salicylic acid, 30 grains;  
Salicylate of methyl, 1 drachm;  
Vaselin, 1 ounce.

This mixture is very active, but possesses an intensely strong odor.

Sometimes good results follow the application of the following prescription:

- ℞ Guaiacol, 1 drachm;  
Terpinol, 3 drachms;  
Alcohol (85-per-cent.), 4 drachms.

#### ON THE TREATMENT OF MALARIAL FEVERS.

M. C. NANJUNDA ROW, of India, writes on this subject to the *New York Medical Journal* of January 15, 1898. He advances a method of treating malarial fevers. According to this method, the dose of quinine required is not a large one; and the writer has had no occasion to give more than a gramme (fifteen grains) of quinine sulphate in one dose in even some of the refractory cases that he has had to deal with in those parts, and he has not met with a single case in which any ill effects of quinine were manifested—not even vomiting, which so frequently follows the administration of large doses of quinine.

The method is one advocated strongly by the late Dr. George Smith, once the senior physician of the General Hospital, Madras, and it depends on the fact that the best time for administering quinine is when the pathogenic germs are in the most weakened condition, and not when they are in a vigorous condition. Dr. George Smith, with a view to impress on his students the importance and reasonableness of his method of treatment, used to teach them graphically that the best treatment for malarial fevers was to "strike the enemy (malarial germs) when he is weakest, with the strongest weapon (a fairly large dose of quinine)," and that in

all cases of malarial intermittent fevers the actual attack of rigors and fever was the result of the war that was taking place in the system between the malarial germs and the phagocytes, and the cessation of fever was an indication of the defeat of the enemy, caused partly by their destruction and partly by their being weakened. The interval indicates the rest and the time required for the growth of the younger germs and for the recovering of the lost strength by the weakened ones for a further attack, so that the enemy is in his weakest condition as soon as the fever begins to subside; and it is then that a large dose of quinine, the specific *par excellence* for malarial disease, is to be administered and its effect prolonged by frequent smaller doses at intervals of from four to six hours for some days after that. Whatever the explanation may be, such of us as have followed his directions have yet to find a case which has not yielded to this method of treatment.

The actual method employed by the writer in all cases of intermittent fevers is never to give quinine either before or during an attack. He always waits for the attack to subside before giving any medicine; and during the attack he allows the patient to have any hot drinks he may like, such as coffee, tea or warm milk, or iced water or milk if preferred. The writer never gives any antipyretics to bring down the fever, as he has always found that the reduction of fever by means of an antipyretic prevented somehow the full action of quinine, and recurrence of the attacks has been common only in such cases. But when the fever begins to subside in the usual course, and the patient begins to perspire freely and to feel free from headache and other uncomfortable symptoms, the writer gives him from ten to fifteen grains of sulphate of quinine for the first dose, and then five grains every four, five, or six hours after that (in many cases not more than four times a day) for a week at least, after which time he continues quinine in two-grain doses with four or five minims of Fowler's solution (liquor arsenicalis, B. P.) twice a day, after meals, for a fortnight longer.

If quinine is administered in this way it is very rarely that another attack occurs. In the writer's experience of many cases of malarial intermittent fevers of all types, he has not had more than five or six cases in which the attack recurred more than once, and those rapidly yielded to the quinine



similarly administered again. Larger doses than fifteen grains, as advised by Dr. Ballagi and others, are perfectly unnecessary and are chiefly instrumental in producing many of the ill effects of quinine poisoning, so to speak. As a general rule Row prescribes only ten grains of sulphate of quinine for an adult for the first dose, and it is only in rare instances that he gives fifteen grains, and he has had no occasion to use any larger dose than this, as by the use of this method the very next attack is invariably prevented.

The form in which he gives quinine is that of soft gelatin capsules containing measured quantities, or that of freshly made pills with glyceride of tragacanth, or that of wafers. It is only rarely he orders it as a mixture or solution, more especially in cases of children and others who cannot swallow a pill, however soft and small it may be. Though the solution of quinine does undoubtedly act much sooner and much more efficiently, it has two important drawbacks, viz., its bitter taste and its producing vomiting oftener than the capsules, wafers, or pills, freshly prepared. Certainly, as Dr. Ballagi says, compressed tablets and hard-coated pills are to be condemned, for he knows of a case in which a brother practitioner prescribed seven of these hard-coated pills of two grains each, and six of them were passed out in the patient's motions two days after, intact.

#### COLITIS.

In the *Birmingham Medical Review* for January, 1898, ARTHUR FOXWELL, in writing of colitis, has the following ideas to convey as to treatment. He says when you feel any certainty that you are dealing with a specific poison, then no doubt a specific remedy should be employed and chiefly depended upon. In acute dysentery, ipecacuanha has a specific value, and according to Kanthack and Caddy, the de-emetinized drug gives as good results as that retaining the emetin, whilst the painful depression and nausea of emetin is avoided. But even with amebic dysentery, ipecacuanha is by no means universally used. The French surgeons use it apparently chiefly for its emetic qualities and not as a specific. Bretonneau advised large doses of salines, whilst Leahy, of Hyderabad, saturates seven fluidounces of water with sulphate of magnesia, to the solution adds one ounce of dilute sulphuric acid, and gives half an ounce of the mixture every one or two hours. He says he thus treated ninety-five

consecutive cases with only three deaths, and two of these three were brought to him moribund.

If there be no evidence of specific infection, then a good plan is the following: Administer a powder of morphine  $\frac{1}{4}$  grain, hydrargyri subchloridi  $\frac{1}{4}$  grain, every two hours by the mouth. By the bowel give every hour a two-pint simple enema, containing two ounces of boracic acid; this will soon be returned, and after its return give a pint enema of starch containing ten drops of laudanum. As nourishment, small quantities of brandy mixture every hour, with plenty of bland liquid and frequent ounce doses of well cooked sago, arrowroot, or custard. If there be much pyrexia or any localized abdominal tenderness, then ten to thirty leeches over the tender spots will be efficacious in relieving pain, pyrexia, and diarrhea. Constant hot fomentations to the abdomen no doubt ease the pain. As far as possible there should be complete rest in bed. In the chronic stage liquid, bland, unstimulating food should alone be taken; skim milk acts excellently. Calomel, rhubarb, or other hepatic stimulant should be taken frequently in small doses, for there is a great tendency to congestion of the liver, probably from toxic absorption. The bowels should be kept open daily; for this purpose a drug which increases peristalsis is the most useful. The writer has obtained the best results with cascara and belladonna. Even in the chronic non-amebic varieties he has found moderate doses of de-emetinized ipecacuanha of considerable service, given thrice daily for a week at a time. But persistent antiseptic enemata with occasional injections of nitrate of silver, sixty grains to the pint, is the treatment which seems most rational, and that which has proved most successful.

Massage of the abdomen, though it has soothed pain, has not in the author's hands had much curative effect. Both it and enemata are liable to produce perforation if roughly administered. Lying out-of-doors on a couch for most of the day is perhaps the most excellent of all methods of cure, and if the patient be warmly clothed with flannel, it is quite without danger.

But whatever be done, colitis is a very stubborn disease, just as is its congener appendicitis. Both are sadly given to relapse, and with each relapse we are confronted with the danger of perforation. Unfortunately, as we now think, we cannot remove the colon as we can the appendix. However, this may

not be an unmixed evil, for the after-history of the amputated appendix has yet to be written.

The writer is not at all sure whether it would not be wisest, as soon as a case has become chronic, to do a right colotomy both for the purpose of relieving the colon of fecal irritation and, more important, to enable astringents and antiseptics to be thoroughly applied to it. This treatment has already been suggested and successfully carried out by Mr. Mayo Robson. The writer doubts if it is ever of much value to do it for late obstruction or peritonitis; the gut is then too deeply and extensively diseased for any curative treatment; the result, at the best, can only be the annihilation of the large intestine and the formation of an artificial anus in the right inguinal region; but even this is little more than a pious aspiration, for five feet of deeply ulcerated and often sloughing intestine is not likely to lie encircling the belly in placid effacement.

Performed at an early stage and well followed up with persistent cleansing and stimulation, this method of treatment holds out great prospect of cure. For this early performance we want absolute certainty of diagnosis, which is often most difficult or impossible to attain; further, we require to know the degree of the lesions already inflicted—a still more arduous task. Unless we know these two things we cannot with any confidence reassure the patient as to the temporary character of the artificial anus, and if we are unable to do this we can scarcely wonder at his refusing to suffer so grave and disgusting a mutilation.

#### TINCTURE OF MYRRH IN DIPHTHERIA.

Dr. STRÖLL, writing in the *Allgemeine Medicinische Central-Zeitung*, very strongly recommends tincture of myrrh in diphtheria. The mixture he uses is composed of tincture of myrrh 4 parts, glycerin 8 parts, and distilled water to 200 parts. This is given very frequently—every hour or even every half hour in the daytime and every two hours at night, infants up to the age of two taking a large teaspoonful (seventy-five minims), older children double that quantity, and adults three times as much. This is continued until the membrane has nearly disappeared, when the doses are only given every two hours. After all the membrane has gone the treatment is continued for a couple of days, the interval

between the doses being increased to three hours. This, of course, is with the view of preventing any recurrence. Usually the fever and lassitude disappear in twenty-four hours, so that a child may frequently be found within that time sitting up in bed playing. He says that there does not seem to be any need for local treatment, but in the case of older children and adults a gargle containing one-half per cent. resorcin may be employed every hour or oftener in the daytime, and where it is desired the tonsils may be painted every hour with the tincture of myrrh undiluted. Where the larynx is involved Dr. Ströll prescribes the myrrh and glycerin mixture in an inhaler or spray to be used every half hour. By the employment of this method Dr. Ströll states that he has only lost one case out of eighty, and he has collected reports from several other practitioners in various parts of the world who have treated altogether 182 cases with 22 deaths. No mention, however, is made in his own or in the other cases of bacteriological verification of the diagnoses. The *rationale* of the efficacy of myrrh is supposed to be that this drug increases the phagocytic elements in the tonsils.—*The Lancet*, Jan. 1, 1898.

#### ESSENCE OF NATURAL WINTERGREEN AND ESSENCE OF ARTIFICIAL WINTERGREEN IN THE TREATMENT OF RHEUMATISM.

VIDA writes that he has substituted since the month of July, 1896, the application of compresses soaked in essence of wintergreen for the ingestion of salicylate of sodium in rheumatic patients whose digestive tubes and nervous systems it was important to consider. He noted at the onset in a certain number of patients some cutaneous manifestations varying from simple temporary erythema to the reappearing papulous eczema. In all the rheumatic patients the essence of wintergreen was applied according to the process become classic of 50 to 100 drops poured upon a double fold of aseptic gauze and covered by an impermeable material applied for some hours either to the forearm or to the leg, and renewed twice every twenty-four hours. Surprised at these cutaneous accidents which manifested themselves, especially in a series, and which could not be imputed to an exaggerated susceptibility of the integuments of these patients, the writer sought for their cause and arrived at the following conclusions:

There exist now in commerce two essences of wintergreen indifferently utilized in the drug business, and differentiated only by their price, varying from the single to the double. The one, the natural essence of wintergreen, is of a reddish-yellow color, having an oily odor, essentially extracted by distillation from the *Gaultheria procumbens* or palommier, and is a mixture of hydrocarbons not yet perfectly defined and of methylic salicylate in the proportion of nine-tenths. The other, the artificial essence of wintergreen, is colorless, with an acrid odor, empyreumatic, recalling the odor of coal smoke, is pure methylic salicylate, and is obtained synthetically. On simultaneously applying to the two forearms of a rheumatic patient according to the method already described some compresses, the one soaked with the natural essence and the other with the artificial essence, it may be easily noticed that no reaction is produced upon the section of the member in contact with the pure methylic salicylate. The part treated with natural essence of wintergreen is, on the contrary, more or less red, painful, and covered sometimes with rubeoliform eruption. Methylic salicylate cannot have a different action according to the product employed. It is, then, necessary to conclude that the irritating action of natural essence of wintergreen is due to resins of an undetermined nature (*Gaultheriline*, etc.) mixed with the salicylate. It is important, in order to avoid all irritating action appearing to counterbalance the excellent effects of this cutaneous medication, to renounce the vague appellation of "wintergreen," which leaves to the preparer the choice of employing the natural or artificial essence, and often of mixing the two essences delivered by the producer, and to prescribe the pure methylic salicylate deprived of all irritating action and not leaving any doubt as to the product to be employed.—*The Lancet*, Jan. 1, 1898.

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**THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.**

The *British Medical Journal* for April 2, 1898, contains a lecture on this subject in which DOUGLAS POWELL tells us that the most common mistake that one observes in the use of digitalis is that too large a dose is prescribed at first, which tends to premature arterial contraction and cumulative effects. Then, with the appearance of these physio-

logical symptoms the drug is stopped, and some other medicine substituted, until the pulse again calls for its administration. In this haphazard way of using digitalis the heart is never held in good control. In exceptional cases, where there is urgent need to push the drug, digitalin is best used subcutaneously. In ordinary cases a dose of ten minims of the tincture every four, or fifteen minims every eight, hours, or five minims every waking hour, is sufficient. Thus given, the patient being at rest, it generally takes about three days before the pulse is under control, and the urine begins to increase. When its decided effects are thus gradually developed the drug should be steadily continued in doses calculated to maintain its effect. With ordinary watchfulness there is no risk whatever; timely warning of excess is given by the pulse, which having become slow begins to exhibit small intermediate beats, and especially a tendency to go in couples. This is always a sign to reduce the doses or to omit for a few hours. The sickness that occasionally—too often—supervenes with digitalis is most troublesome. An occasional mercurial will sometimes prevent it, a change to digitalin in equivalent doses may be tried, or a tumbler of very hot water taken occasionally. In some cases it is not to be overcome except by omitting the drug; the patient is usually well under the influence of the drug before this symptom appears, in which case a small dose of digitalin by the mouth or hypodermically may be sufficient to maintain its effect on the heart.

In speaking of digitalis, Powell has regarded that drug as representing the whole therapeutic group. Digitalis is so far in front of all the others in efficacy that in critical cases he never thinks of prescribing any other member of the group before it. *Strophanthus* comes next to it in usefulness, and in physiological experiment is even more powerful. Clinically, one is not so well satisfied with it, and this may possibly be prejudiced, but he has had doubts about its stability in prescriptions. It causes the same troublesome nausea. The one reason for its use is that it affects the small vessels less and this gives it an advantage in some cases, particularly perhaps in carrying on the effects of digitalis in convalescent aortic regurgitant and mitral stenosis cases. But as he has endeavored to point out, under most conditions calling for its use this very action upon the arterioles is one of the valuable attributes of digitalis, and explains, possibly, its superiority over *strophanthus*.

thus. He frequently, however, combines the two drugs when he wants to secure an increased cardiac effect without using digitalis in doses large enough to contract the vessels too much. Convallaria comes next for mild cases, and he has occasionally used sparteine. One may observe that the earliest sign of amendment in cardiac failure is an increased flow of urine. A somewhat analogous relief of the stress of symptoms will often be observed with the commencement of dropsical cellular and peritoneum tissues. The peculiar restlessness and discomfort that precede the onset of dropsy are sometimes very remarkable, and the dropsical effusion should rightly be regarded as one of those compromises of Nature which enable the vital machinery to go on a little longer. Dropsy is due primarily to a leakage from the congested capillaries into the cellular tissue. It is also due to a retarded removal of the fluids by the lymphatic vessels.

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*PHYSIOLOGICAL EXPERIMENTS WITH  
INTESTINAL IRRIGATION ON PULSE  
TENSION, TEMPERATURE, RENAL  
SECRETION, AND INTESTI-  
NAL ABSORPTION.*

The *New York Medical Journal* of January 29, 1898, contains an article by KEMP on this topic. He finds that hot irrigation, 110° to 120° F., when prolonged, increases the temperature of the body and blood. The increase of blood temperature is possibly due in part to the contiguity of the solution to the great vessels, as there does not seem to be a proportionate ratio of increase of the temperature of the body to that of the blood if due merely to effect on heat centers. In other words, the influence on the blood temperature seems to be greater in proportion than it does on that of the body. The heated blood would undoubtedly be of value in stimulating the heart, and this shows the further advantage of irrigation at a high temperature in shock and allied conditions.

If the patient's temperature is already high, it might be dangerous to irrigate with fluid at a high temperature for fear of increasing the temperature of the patient.

Cold irrigation reduces temperature, and is depressing after twenty to twenty-five minutes. At first, cold acts as a stimulant.

Clinically, irrigation at a high temperature has proved to be excellent in shock and allied conditions, as stated above. Chapin has employed cold enemata in the diarrheas

of children to aid in the reduction of temperature, and with success. Cold irrigation has also been employed in dysentery for this purpose with good results. Cold irrigation might be employed in sthenic cases to reduce temperature, if used with caution, for five to ten minutes. Friction of the limbs during its application would be advisable, as during the Brand bath. He states that he would not care to employ at the start a temperature below 60° to 70° F. He refers to high intestinal irrigation. It would probably be safer also to use it at first for only two to three minutes.

On the other hand, he has seen benefit in jaundice (duodenal) from the cold irrigation briefly employed (two quarts), or from the alternate hot and cold douche (two quarts each) for chronic constipation. A glass Y-attachment, as suggested by Dr. John Minor, is suggested for this purpose.

Cold rectal irrigations are much safer, and he has seen iced water so applied for thirty minutes in a congestive condition of the rectum, and with great benefit. Some, however, have a marked idiosyncrasy to cold of any degree, and it should therefore be employed with caution.

Hare reports a rise of 4° to 5° F. in dogs after twenty minutes' irrigation, with a temperature of 115° F.; also a marked fall of temperature, practically shock, after the use of cold for twenty to thirty minutes. He does not state whether or not the animal was covered, nor the temperature of the room; which facts make a considerable difference.

The writer states that his own experiments agree with Hare's in regard to the cold, but differ in degree, as regards the effect of the heat on the temperature—quantitatively, not qualitatively—in the result. He believes that without doubt the prolonged irrigation has, at the high temperatures, an influence on the body temperature. The cold irrigation, when prolonged, is undoubtedly depressing.

In ten minutes irrigation at the higher temperatures, especially at 110° to 120° F., stimulates the kidneys to secretion by the heat, and by the stimulating effect on the circulation, also by the heat, blood flows through the organs.

In twenty minutes, irrigation at 100° to 120° F. causes excretion from the kidneys actually through absorption from the intestines, as is shown by potassium ferrocyanide experiments.

Dr. L. Bolton Bangs has administered ene-

mata of iodide of potassium and secured reaction in the urine in twenty minutes.

Clinically, hot saline irrigation is an excellent remedy in uremic suppression, or in cases of renal insufficiency.

Dr. Egbert Grandin has had excellent results from this procedure, and has been advocating it for some time past. Dr. William H. Thomson has employed it with success when other means have failed. They both report excellent results, profuse sweating and bowel action accompanying the renal secretion. Dr. Thomson has employed saline irrigation at 101° to 104° F. with gratifying results recently in an obstinate case of renal insufficiency where other remedies were a failure.

Renal disease with polyuria as a symptom would seem to contraindicate this method, or that it should be cautiously used and for short periods. This statement has special reference to a case of enlarged prostate, in which prolonged irrigation was employed. It aggravated the polyuria and had to be stopped.

It will be specially noted that no reference has been made to the effect of cold irrigation on renal secretion or intestinal absorption; for Kemp considers it a dangerous procedure. Experiments were made in this regard, but the author has kept them apart. Enemata of cold water at different temperatures will be absorbed from the intestines and, as in experiments with hot saline with potassium ferrocyanide, urinary reaction will occur in about twenty minutes, giving the blue with chloride of iron. On the other hand, cold irrigation will for a short time stimulate the circulation and increase secretion, but in about twenty minutes pulse tension will fall, the animal will go practically into shock, and renal secretion cease. We will thus have renal suppression plus shock, or be worse off than before, and the cold will aggravate the suppression.

Cold irrigation is absolutely contraindicated in renal disease—also cold enemata.

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*THE CLINICAL VALUE OF DIPHTHERIA ANTITOXIN ADMINISTERED PER OS.*

ZAHORSKY, of St. Louis, concludes as the result of some experiments that diphtheria antitoxin acts similarly whether given by the mouth or subcutaneously, but its effect occurs much later when given in the former way.

It is possible that the intestinal epithelium

refuses at certain times to take it up, and therefore it is a less reliable method.

This mode should be employed in mild cases when objections stand in the way of its hypodermic use. It may be also used in mild cases in adults.

Its use by the mouth as a prophylactic measure is to be recommended, as it presents many advantages. However, if the child has been exposed to diphtheria for as much as two days the hypodermic method should be employed.

Joint pains, erythema, urticaria and dysmenorrhea are not prevented.

From a clinical standpoint, therefore, it is to be urged that for curative purposes the administration by the mouth should be restricted to exceptional cases; but for prophylactic purposes this method should receive the preference.

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*THE LOCAL TREATMENT OF PAINFUL ULCERATIONS BY ORTHOFORM, WITH SPECIAL REFERENCE TO THE UPPER AIR-PASSAGES.*

YONGE writes of this new drug in the *British Medical Journal* of February 5, 1898. The anesthetic presents a triple claim to recognition, in that it is sparingly soluble, is non-toxic, and is powerfully antiseptic. On the other hand, it is a disadvantage that the substance will not act on unbroken skin, nor, with certain reservations, on intact mucous membranes, for its strong anesthetic properties are only manifested where nerve endings are exposed. The slow solubility leads the anodyne to exert its action economically on the tissues, and unlike its rapidly soluble congener, cocaine, only sufficient is dissolved to produce and keep up local insensibility, which therefore becomes prolonged. In from five to ten minutes after application anesthesia of the denuded surface to both touch and pain commences, and it reaches its consummation within a short period of time. The effect lasts from a few hours to five or six days, and there is, in the majority of cases, perfect or nearly perfect analgesia, the patient experiencing the sensation of the offending part having been cicatrized over or "enameled." Suppuration is usually markedly diminished and healing accelerated.

The action of orthoform on the unbroken mucous membrane of the mouth, nasopharynx and larynx is, in the author's experience, as follows: Neither the free orthoform (basis powder) nor the hydrochloride anesthetize sufficiently to allow of surgical action. When

applied to the tongue, inner surface of the cheek, or to the pharynx, a numb sensation supervenes in the course of about five minutes, but there is little real anesthesia. The effect on the larynx is to reduce reflex irritability. A peculiar feeling, described as similar to that produced by cocaine, is experienced in five minutes; in a few more minutes this relative loss of sensation vanishes, but if before its subsidence a probe be introduced and the vocal cords and interior of the larynx touched, although a species of "gagging" ensues, there is no laryngeal spasm or cough. In the same patient a similar procedure without the previous introduction of orthoform causes intense discomfort and a fit of coughing. The intact nasal mucous membrane is also slightly amenable to the influence of the drug. A feeling of numbness is evidenced in about two minutes, and this merges into real anesthesia, which is, however, feeble and transient.

Yonge has had the opportunity of testing the anesthetic value of orthoform in eighteen patients who suffered from painful ulcerations of the upper respiratory tract, and a few representative cases are quoted.

Toxic effects were not noted in any of the cases, but there was occasionally some slight burning for a few minutes after the application of the hydrochloride. This failure to discover toxicity is compatible with the statements that over twelve drachms has been sprinkled on a broken surface in the course of a week, also that thirty to sixty grains have been administered to rabbits, and forty-five to ninety grains to dogs, without evil effects during life or the post-mortem discovery of visceral changes. Orthoform fails to produce any results on an ulcer unless the dual precaution is taken to apply the drug directly to the loss of surface and to insure its retention there.

No relief was experienced by patients suffering from either catarrhal pharyngitis or quinsy.

The antiseptic action of orthoform appears to be demonstrated by the rapid diminution of purulent exudation in several of the cases encountered, and the speedy healing of the ulcer. In a case of acute gonorrhea injections of orthoform solutions were followed by the disappearance of gonococci in four days, and the complete cessation of blennorrhagia.

Finally, if further observations confirm the results already published, it would appear that orthoform is entitled to take a position

among the local anesthetics applicable to the upper air-passages. It seems probable that it will replace—by virtue of its insolubility and innocuousness—its relative, cocaine, when long anesthesia on ulcerated surfaces is wished for.

#### LOCOMOTOR ATAXIA IN ITS MODERN ASPECT.

F. M. LANGDON tells us in an article contributed to the *Medical Record* of January 8, 1898, that in the modern treatment of tabes the old idea of giving "alteratives," mercury and potassium iodide for their (doubtful) absorbent effect on cicatricial tissue is giving way to measures addressed to the nutrition of the neuron.

There being no syphilitic exudation in true tabes, antisyphilitic treatment is uncalled for. Diet, hygiene, rest, are the main factors in the successful management of the disease. Digestion, assimilation, elimination, must be promoted. Climate, medicines and electrotherapy are of distinct value.

Distressing symptoms, the "lightning pains," "ataxia," etc., are to be alleviated without impairing the general nutrition. Opiates had better be avoided.

Rest in bed is a valuable measure when obtainable. The patient should sleep much and work little. When complete rest is not practicable, a few extra hours daily in the horizontal position is advisable.

The diet should be liberal—meats, fats, milk, water in abundance, and fruits, with a minimum allowance of starchy and saccharine foods. Alcohol is to be prohibited.

The patient should wear warm clothing, and if possible spend his winters in a warm climate. Measures addressed to the elimination of auto-toxins generally by the skin, kidneys and bowels should be instituted.

Drugs of more or less use in the treatment are those of nutritional value, mainly phosphorus, iron, cod-liver oil, with tonics such as strychnine.

For the lightning pains aluminum chloride (dose, two to four grains in water) is a drug of considerable value. Dr. Gowers originated its use for this purpose.

Electricity is of distinct value in a large proportion of cases. Ordinary faradism is useless, galvanism better. The writer's experience has led him to value highly that form of electricity known as the "sinusoidal" current. It is a current of "high potential" (voltage), rapid alternation (480 to 1920 per second), and comparatively small "quantity"

(amperage). Its application is simple and controllable, as well as pleasant to the patient. It is administered by means of a "foot-plate" and a neck electrode for from five to fifteen minutes every alternate day for six weeks. Under its use, with simple hygiene and often without drugs, the lightning pains cease, the ataxia of gait and station disappears, and the well-being of the patient is promoted. These effects would seem to indicate an actual improvement in the nutrition of the peripheral sensory neuron, with capacity for better function in some, possibly restoration of damaged nerve endings in others. This six weeks' course of treatment may be repeated once or twice yearly, as indicated, with advantage to the patient.

Patients treated by the foregoing methods have been under observation for nearly two years without relapse of pains or ataxia, and with full capacity for ordinary business affairs. All cases are improved, some more than others, depending on the stage and extent of the disease. Many additions to cases formerly cited might be made, but space and time forbid.

In conclusion, it may be stated that, by reason of clearer conceptions of its pathology, leading to a more rational therapy, locomotor ataxia becomes a more hopeful disease to treat.

#### TREATMENT OF LUPUS BY CONCENTRATED LIGHT.

N. R. FINSSEN, of Copenhagen (*Semaine Médicale*, 1897, No. 59), who some time ago published an account of the red-light treatment of variola, has now utilized the light rays, which he found so injurious in smallpox, in the treatment of lupus vulgaris. The action of light as a disinfectant and bactericide has been recognized by many investigators, especially recently by A. Ransome in regard to tubercle bacilli. It is, therefore, very interesting to hear that Finsen, by means of a simple apparatus, has concentrated the rays—either sun rays or electric arc rays—on patches of lupus, and in most cases has obtained satisfactory results. R. L. Bowles has pointed out that the rays at the violet end of the spectrum—or "chemical rays," as they are termed—probably penetrate more deeply than do rays in other parts of the spectrum, and one would think that the almost translucent material of lupus granulations would be more suited to transmit them than ordinary skin. There seems nothing improbable in the view that the con-

centrated light rays, at least the "chemical" ones, actually reach the tubercle bacilli which cause the cutaneous affection, and gradually kill them if the lupus granulations be not too opaque. Finsen's paper is illustrated by some of the results he has obtained.—*British Medical Journal*, Jan. 29, 1898.

#### THYROID TREATMENT IN INSANITY.

GERVER (*Obzorrenye Psichiatryiek*, November, 1897) has tried the effect of Poehl's thyroïdin in ten cases of insanity. The patients included three cases of acute primary dementia, three cases of melancholia, one case of recurring mania, one case of delusional insanity, one case of organic lesion of the brain, and one case of epilepsy. To begin with, two grains of thyroïdin was administered twice daily, and the dose gradually increased to ten grains given three or four times a day. The treatment was continued for about six weeks, but in one case, that of organic cerebral lesion, it had to be discontinued earlier, as it caused too much gastrointestinal disturbance. The result of the trial was disappointing. Only two of the patients benefited by the treatment, and even in them some doubt was felt whether the improvement was due to the thyroïdin or whether it occurred in the natural course of the disease. The successful cases were one case of melancholia in a lady, aged seventy-two, in whom the disease disappeared a year previously without any thyroïdin treatment, and the case of delusional insanity in a middle-aged man, who stated that he felt the strong stimulant effect of the thyroïdin. During the treatment some peculiar physiological effects of thyroïdin were observed in all the patients. Their pulses were increased, and they all lost weight. The temperature, sleep, and appetite were unaffected. Salivation was observed in one case, and twitchings of the facial muscles in another.—*British Medical Journal*, Jan. 29, 1898.

#### THE LITHOTOMY POSTURE IN PARTURITION.

Dr. OSCAR SCHMIDT, of Moscow, contributes an article on this subject to the *Centralblatt für Gynäkologie* of November 27, 1897. He says that he has made use of this posture for about eight years past, employing it while the head is in the pelvic cavity and when it is at the outlet. The patient lies on her back, lengthwise of the bed, and at the beginning

of a pain two persons, usually the physician and the midwife, standing one on each side of the bed, seize the patient's legs, bend her knees to the utmost, spread them apart as much as possible, and flex the thighs on the pelvis as in the lithotomy posture, at the same time everting the toes. That one of the physician's hands which is not employed in holding a knee may make pressure upon the child's breech, and so strengthen the action of the abdominal muscles. When the pain subsides, the limbs are allowed to resume their natural posture in the bed. The author thinks the favorable effect of this procedure is demonstrable. In the case of a primipara, he says, the segment of the fetal head that appears at the vulva during a pain is much larger than when she simply lies on her back. The difference is seen most strikingly in multiparæ when the head is in the pelvic cavity, and often very few pains with the woman in the lithotomy posture suffice to complete the birth. Almost without exception, says Dr. Schmidt, the patients take kindly to this procedure, and he has even observed, in cases in which it was an object to delay the expulsion of the child, so that he has omitted to resort to it, that the patient herself would assume the posture voluntarily during the pains, holding her knees with her own hands. He adds that since he adopted this device the occasions of his having to resort to the forceps operation, either high or low, have been reduced to a minimum, and almost without exception they have been brought about by pathological conditions.

Dr. Schmidt thinks there are several reasons why this posture facilitates the process of parturition. In the first place, he says, it increases the intra-abdominal pressure, but, what is of greater consequence, it enlarges the pelvic outlet. He refers to experiments made by Walcher, and others by Klein, accounts of which were published respectively in 1889 and 1891, showing that the articulations of the pelvis, especially the sacro-iliac, possessed a certain degree of mobility. With the sacrum fixed, the symphysis pubis may be moved up and down a little. The center of rotation is situated behind and beneath the promontory of the sacrum. The authors mentioned, says Dr. Schmidt, gave their chief attention to the conjugate diameter of the pelvic inlet, as being the most important obstetrically, but Klein measured the transverse diameter also. The conjugate diameter of the pelvic outlet, says Dr. Schmidt, the distance from the tip of the

coccyx to the lower border of the pubic symphysis, unfortunately, is not mentioned by them, and the same is true of the transverse diameter, the distance between the tubera ischiorum. We know, says the author, that when the symphysis sinks as much as it can the conjugate diameter of the inlet is increased; when it is raised as much as it can be, as in the lithotomy posture, that diameter is diminished. It follows as a logical consequence, he thinks, that the reverse must happen to the conjugate diameter of the outlet. Whether or not there is at the same time a greater separation of the tuberosities of the ischia, he adds, has not been directly ascertained; in only one of Klein's experiments on corpses was such an effect shown, and that but to a small extent. However, Dr. Schmidt himself believes that it does occur, judging from the fact that in cases of symphyseotomy the maximum separation of the pubic bones is obtained by resorting to the lithotomy posture. The same thing has been observed by Biermer in experiments on the dead body. The tendency of the pelvis is, therefore, to expand laterally in this posture; unfortunately, as yet no measurements of the degree of pelvic mobility in the dead bodies of freshly delivered women have been made. The pelves that Klein dealt with did not include one of a pregnant or lying-in woman, and so we may explain the fact that his observation of the comparatively small change in the conjugate diameter on changes of posture does not tally with the observations of clinicians. We are leaning more and more, says Dr. Schmidt, toward the view of the old obstetricians, that Nature makes the pelvis movable for parturition; Driver observed the fact in three hundred lying-in women.

The lithotomy posture has been employed in labor by others. Dr. Schmidt refers to its use by Remy, who has the patient lie cross-wise of the bed, and straps her thighs to her body with two bands of sticking-plaster. The author thinks his intermittent method must save the woman some discomfort. Especially in primiparæ, he says, in whom there is so often a disproportion between the size of the head and that of the vulva, compelling the physician to resort to the forceps, it cannot fail to be an advantage to have at command a procedure that the patients regard as a "natural" mode of delivery. Frequently a unilateral incision answers in cases in which the forceps might do great injury to the vagina and perineum.—*New York Medical Journal*, Jan. 8, 1898.



*THE INJECTION OF STERILIZED OLIVE OIL WITH GUAIACOL AND IODOFORM IN TUBERCULOSIS.*

A. BRETON, of Dijon, publishes an article on this subject in the *Journal des Praticiens* of December 19, 1897. He first calls attention to the fact that he published an article upon this topic during the last year, in which he reported 550 injections of sterilized olive oil with guaiacol and iodoform. The formula which he employs is:

- ▮ Iodoform, 15 grains;
- Guaiacol, 75 grains;
- Sterilized olive oil, 3 ounces.

One to one and a half drachms of this is injected at a dose and, he asserts, without danger. He records 424 injections given to eighteen patients suffering from pulmonary tuberculosis, and claims that the effects are distinctly favorable. He also records the history of nine of these patients, giving more minute details as to the results which he obtained. These consist chiefly in showing that there was an amelioration of all the pulmonary symptoms and a general increase in weight. The injections should be given into the loose connective tissues of the back, or shoulder, or thigh.

Careful asepsis should be maintained. Two patients who were suffering from diarrhea developed a scarlatiniform eruption after the guaiacol had been employed. This erythema was intensely itching and lasted three to five days in its acute phase, with slight fever, but entirely disappeared eight or nine days after the injection. Breton is inclined to believe that the intestinal disorder was responsible for it.

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*MUSHROOM POISONING.*

There is only one rule to be followed in avoiding poisonous mushrooms, and that is to know that the particular variety is safe because it has been eaten with impunity. That is, the one who picks mushrooms should be able to say that he knows a kind to be good, not because it has this or that characteristic, but because he recognizes it as one that he has tried. He should know it in the same way that he knows he is picking blueberries or whortleberries and not the berries of the deadly nightshade. Those who go by any rule of thumb, such as the color of the gills or the presence of rings on the stem, or still more by such crude tests as the discoloration of a silver fork cooked with the mushrooms, will be likely to come to grief sooner or later.

It is to be remembered first of all in dealing with the subject of mushroom poisoning that these fungi are easily decomposed, and being largely nitrogenous may readily become the cause of ptomaine poisoning. Murrell warns particularly against this and urges that great care should always be taken that mushrooms are fresh when cooked; to warm them over he considers a dangerous practise. Ptomaine poisoning from mushrooms would be like that from the development of tyrotoxicon in milk products, and would take the form of an acute gastro-enteritis beginning within a few hours after the ingestion of the poison.

Quite different from this is the typical mushroom poisoning, whose cause as far as is known is muscarine, first described by Schmiedeberg as a colorless, syrupy mass, without odor or taste, and easily soluble in water or alcohol. An account of six cases of this form of poisoning was given last summer by Dr. Caglieri, of San Francisco; it illustrates well the peculiar delay in the action of the poison. The six cases all occurred in one family and three were fatal. The mushrooms were eaten at about six in the evening. The first symptoms appeared in all the cases during the forenoon of the following day, and took the form of vomiting and diarrhea. In most of the cases these symptoms were slight. All felt dull and stupid on awakening, and there was a feeling of dyspnea which led them to seek the fresh air. One patient, a child, died during the evening of this day with convulsions. The two others who died (also children) showed no serious symptoms until the morning of the second day. At this time there was mental dulness increasing to stupor, rapid, empty pulse, contracted pupils, irresponsive to light, rapid respiration, suppression of urine, and free perspiration. One died on the second, one on the third and one on the fourth day after the poisonous meal. The fatal dose in all of these cases was but a small one—in two cases but one-half of a medium-sized mushroom, and in the third case but one-sixth. The members of the family who escaped ate as much or more of the mushrooms, and it is supposed that there were but one or two poisonous fungi in the dish; that those who died ate these, while the others ate good mushrooms that were rendered somewhat poisonous by being cooked together with the bad. Muscarine is present in the dry fungus of the commonest poisonous variety (the *Amanita*) in the proportion

of only one-fifth of one per cent., so that the fatal dose, which has never been accurately determined, must in the light of these cases be a small one.

The physiological antidote of muscarine is atropine, which should be given in full dose, say one-sixtieth of a grain, and repeated if the pupils are not dilated by the first dose. With this should be given strychnine and such other stimulants and heart tonics as are usual in the treatment of poisoning by depressants.—*Northwestern Lancet*, Jan 1, 1898.

#### THE TREATMENT OF DELIRIUM.

The *Medical News* of February 26, 1898, contains an article by COLLINS on this topic, in which, after wandering over a very large subject, and touching here and there some of the more important points, he makes a few direct remarks on the treatment of delirium, fully cognizant that therapeutics must vary in every case, and that the indications in one kind of delirium may not suffice or be sufficient in another. Nevertheless, there are a few underlying principles in the treatment of all deliria, and it is these which he endeavors to lay down, prefacing his remarks by saying that sedatives are used too frequently and too indiscriminately. Bromides especially are frequently given offhand, in large doses, and over quite an extended period, apparently forgetful of the fact that they may, by adding to the vascular depravity which is so often at the bottom of the delirium accompanying asthenic states, intensify and prolong the duration of the symptoms for which they are given.

The general indications in the treatment of delirium are, first, to secure sleep; second, to overcome motor unrest; third, to prop up and maintain the patient's vitality by contributing to his nutrition; and fourth, to discover and remove the cause upon which the delirium is dependent.

To meet the first indication hypnotics are almost always required, although it should never for a moment be forgotten that an hour's sleep induced by measures taken to fulfil the third condition is far more salutary than three hours' sleep obtained by the use of a hypnotic. Moreover, that in many forms of asthenic delirium, whether the asthenia be induced by infection, intoxication, exhaustion, senility, or what not, sleep is more readily induced and maintained by measures directed immediately against the asthenia than against the insomnia. In the selection of a hypnotic

the one least depressant to the patient's vitality and least apt to be followed by depression should always be given preference. The motor depressants should never be used in the delirium accompanying the asthenic state, except as the very last resort. In certain forms of sthenic delirium, and especially those in which a sedative effect cannot be produced by the external application of water, drugs which are motor depressants and at the same time hypnotics may be used with the greatest benefit. Of these, the alkaloids of hyoscyamus are the most available.

The second principle is that great care should be exercised in the application of mechanical restraint in all forms of asthenic delirium, lest the encroachment on respiratory capacity lead to pulmonary complications which jeopardize the life of the patient. Whenever possible, physical restraint is very much less dangerous.

Concerning the third principle, that of maintaining the patient's vitality, Collins insists on its importance.

The meeting of the fourth indication, viz., the discovery and removal of the cause of the delirium, is after all the most essential procedure in the treatment of this symptom. To do this the pathological association must be determined, and then our ammunition leveled directly against it, while simultaneously the first three principles enumerated are guiding us in symptomatic therapy.

#### METHYLENE BLUE IN MALARIAL FEVER.

The Berlin correspondent of the *London Lancet* of February 26, 1898, tells us that Dr. Cardamatis, of Athens, inspired by the researches of Professor Ehrlich of Berlin, and Professor Boinot of Paris, has successfully used methylene blue in the treatment of malarial fever. In his report communicated to the *Deutsche Medicinische Wochenschrift* he publishes 275 cases where the drug was administered. The dose was from ten to twelve grains ("Gran") for adults, eight grains for younger patients, six grains for children, and one or two grains for infants at the breast. In typical intermittent fever the drug is given ten hours before the beginning of the paroxysm; in remittent or continuous fever eight hours before the remission. When both methylene blue and quinine failed a combination of the two drugs proved useful, but the effect was less marked when the methylene blue was associated with arsenic. The

combined treatment was necessary in only thirty of the 275 cases. In quotidian ague, when the patients had become free from fever, after five days' administration, the drug was given for six days. A pause of two days followed, after which it was again given for four days; after a second pause of eight days there was a final administration spread over two days. After twenty-two days a radical cure was obtained in this way. When the attacks appeared again after the fifth day treatment was continued for forty-eight days with several interruptions. In tertian and quartan ague the first stage of the treatment lasted twelve days, and the remedy was given for sixty days with several carefully arranged intervals.

The advantages of methylene blue were especially obvious in those cases where quinine had proved useless or where there was intolerance of it. The drawbacks associated with methylene blue are the staining of the tongue and the lips; a slight amount of cystitis was also sometimes observed, but these inconveniences are very slight in comparison with the radical cure obtained in nearly every case. Immunization seemed to be produced by the treatment, for although the convalescents continued to reside in the malarial district very few of them indeed were subsequently attacked. With the exception of the cystitis already mentioned no toxic symptoms were ever observed. In eighteen instances the fever disappeared after the first day, in thirty-six after the third, in eighty-four after the sixth, in eighty-eight after the tenth, in eighteen after the eleventh, and in thirteen after the twelfth day. In eighteen cases no cure was obtained. In thirty-eight out of the 275 cases a relapse occurred after two months.

#### THE COLD-BATH TREATMENT OF SCARLET FEVER.

In a recent number of the *Blätter für Klinische Hydrotherapie*, JURGENSEN, of Tübingen, writes on the value of the treatment of scarlet fever, from the moment of its invasion to the end of the disease, by means of cold baths. As soon as the temperature reaches  $102\frac{1}{2}^{\circ}$  the patient receives a bath which lasts for about five minutes, the temperature of the bath being about  $80^{\circ}$  or lower. Children well advanced in years may have even colder baths with advantage. Jürgensen claims, with Leichtenstern, that by this means the pulse is slowed, the temperature

is reduced, and that a very favorable influence is exercised upon the general circulatory and nervous system. The baths may be repeated every four or five hours, but seem to be particularly valuable in those cases where the system is depressed by the toxemia of the disease. Where the physician fears that the shock to the patient will be disadvantageous, warm baths may be used, the temperature being as high as  $100^{\circ}$  to  $106^{\circ}$ , and, at the same time that active frictions are applied, cold affusions should be made to the head and shoulders.

The following contraindications to this method of treating scarlet fever are named: Feebleness of the heart or existence of appreciable myocarditis, difficult respiration due to stenosis of the air-passages, epistaxis or hemophilia, inflammations of the joints. Where scarlatinal nephritis is to be treated, hot baths at about  $100^{\circ}$  to  $102^{\circ}$  or hot packs may be used to advantage to relieve the kidneys.—*Revue de Thérapeutique Médico-Chirurgicale*, Feb. 1, 1898.

#### MASSAGE IN THE INCOERCIBLE VOMITING OF PREGNANCY.

In the *Bulletin Général de Thérapeutique* of December 15, 1897, JEFFROI, while recognizing the fact that a large number of remedial agents have been employed in the treatment of this condition, strongly recommends massage. He states that usually it only requires five or six seances to obtain a complete result, and after two or three rubbings the vomiting ceases. The massage is applied to the region of the stomach and duodenum. Nearly always there will be found when it is begun marked tenderness in this region. He reports a number of cases in which this treatment was followed by very good results.

#### THE TREATMENT OF ACNE VULGARE AND ACNE ROSACEA.

The local treatment of acne vulgaris may be by means of scarification, but care should be exercised in its use lest permanent and severe cicatrices result. After scarification compresses wet with a solution of one-half to one per cent. of lysol may be applied. At night an ointment containing ten per cent. of precipitated sulphur and two per cent. of pure resorcin and salicylic acid may be applied after the part has been washed with green soap. Should this treatment cause

great irritation of the skin, this may be partially removed in the morning by a cooling ointment or cold cream. After some time, when the treatment has, by producing inflammation, substituted desquamation for the ordinary acne process, the part may be dressed with one of the following ointments:

- ℞ Ichthyol, 5 grains;  
Oxide of zinc and starch, 75 grains;  
Vaselin, 6 drachms.

Or,

- ℞ Oxide of zinc,  $\frac{1}{4}$  ounce;  
Olive oil,  $\frac{1}{4}$  ounce.

The following ointments may be applied to the skin in cases of acne rosacea, being thoroughly rubbed in:

- ℞ Naphthol, 15 grains;  
Washed sulphur, 1 drachm;  
Vaselin,  $1\frac{1}{4}$  drachms.

Or,

- ℞ Pure resorcin,  $\frac{1}{4}$  to 1 drachm;  
Oxide of zinc and starch, of each 15 grains;  
Vaselin, 2 drachms.

Should the skin be very red and turgescient it may be well to aid total desquamation of the skin in the region treated. Under these circumstances the prescription given for oxide of zinc and sweet oil may be used to allay the inflammation. Sometimes the prescription for ichthyol already named will be useful. In very rebellious cases scarification may be needed, under which circumstances anesthesia may be produced by the use of chloride of ethyl. — *Revue de Thérapeutique Médico-Chirurgicale*, Feb. 1, 1898.

#### THE HYDROTHERAPY OF MEASLES.

In the *Blätter für Klinische Hydrotherapie*, JURGENSEN recently published an article upon the bath treatment, dealing in this case with the disease, measles. As a rule he does not believe that hydrotherapy is necessary, but should the following conditions arise it is useful: Should the patient be stuporous, or if there be marked delirium and convulsions, cold affusions at 60° to 70°, lasting for two minutes, may be applied to the head and neck. If this is insufficient to reduce the temperature, then a bath of 70° to 80°, lasting for five minutes, with colder affusions to the head, may be used. Feebleness of the heart does not seem to be the same contra-indication to the use of cold in measles as it is in scarlet fever. Should there be signs of laryngeal stenosis it may be well to place the child in a hot bath or in a hot pack for from

fifteen to twenty minutes. Should the face become very much congested, cold affusions may be applied to the head or an ice-bag may be used. Should the temperature become subnormal, a hot bath may be given accompanied by energetic rubbing. Where there are evidences of catarrhal bronchitis it may be well to apply sudden cold affusions to the chest and to follow these immediately afterwards by the administration of an emetic.

#### THE NON-OPERATIVE TREATMENT OF ENDOMETRITIS.

The *Journal de Médecine de Paris* of February 6, 1898, gives the following advice under this heading: The vagina and the cavity of the uterus is first thoroughly washed by a 1-to-1000 (!) solution of corrosive sublimate. After this one of the following crayons is introduced:

- ℞ Powdered iodoform,  $2\frac{1}{4}$  drachms;  
Gum tragacanth,  
Glycerin and water, sufficient quantity to make 10 crayons.

Or, instead, salol or resorcin may take the place of iodoform.

Sometimes the following treatment can be used:

- ℞ Corrosive sublimate, 7 grains;  
Powdered talc, 1 ounce;  
Gum tragacanth,  
Glycerin and distilled water, a sufficient quantity to make 15 crayons.

These crayons may be introduced into the uterus and kept there by tampons saturated with iodoform or salol, which are placed in the vagina.

[We should regard this treatment with doubt, preferring in all cases curettement or other operative procedure.—ED.]

#### ON THE TREATMENT OF SOME OF THE MORE COMMON EYE AFFECTIONS.

In the *Edinburgh Medical Journal* for January, 1898, Mr. BERRY gives the following information as to some of the common eye affections:

A condition that one is frequently called upon to treat is hyperemia or inflammation of the lid margin. The inflammation, blepharitis, is met with in very varying degrees of severity, and leads to more or less marked ulceration of the free margin of the lid, as well as sometimes of the contiguous skin. Different cases of blepharitis are often classified according to differences in the local

pathological changes. From the point of view of treatment it seems better to recognize, as far as possible, the main differences in etiology. A sufficiently useful etiological classification might embrace three groups, which, however, can hardly be said to be always absolutely distinct.

One of these groups includes the cases of blepharitis which occur for the most part in delicate children, and are often associated at times with attacks of phlyctenular inflammation of the conjunctiva and cornea. Some reference has already been made to these cases. They are cases of what may be called the strumous form of blepharitis. Another group includes the cases which are more or less evidently connected with a chronic catarrhal condition of the tear sac. The last group again comprises those of herpetic or eczematous blepharitis, as the third variety has sometimes been called. In these there is an absence of the strumous element, and usually, at the same time, of any evidence of auto-infection from local sources. They mostly occur in adults, and are often associated with more general eczema of the skin of the lids.

The worst cases of blepharitis belong to the first two groups. The inflammation in them often goes the length of ulceration, and this ulceration leads to greater or less destruction of the eyelashes. In old-standing cases it is common, indeed, to find a complete or practically complete absence of eyelashes. This gives rise to an ugly, red, blear-eyed appearance, which is very characteristic. Short of this there may be an alteration in the color and character of the lashes, many of those remaining being misdirected, and thus leading sometimes by their inversion to irritation or ulceration of the cornea. The ulcers of the lid margin, as they extend in depth, partially or completely destroy the hair follicles, and then cause these changes in, or the loss of, the eyelashes.

In the treatment of all cases of blepharitis, the first step should be to remove the crusts or scabs which have formed, and to epilate, with the cilia forceps, all the eyelashes which present a distinctly abnormal appearance in their color, their thickness, or the direction of their growth. The subsequent treatment must depend upon the etiology of the local inflammation, as well as to some extent upon the severity of the changes which have been produced. Sometimes, when the ulcers of the lid margin have become to a great extent confluent, a really satisfactory clearing of the soil for local applications can only be got by

first cutting all the lashes off with a pair of scissors. This is comparatively seldom necessary, however. Before attempting to remove the scabs, it is best, in the more pronouncedly impetiginous cases, to apply a starch poultice, in order to soften them. They can afterwards be carefully and thoroughly picked off with a piece of quill, without causing much pain. Until this is done, any epilation that may be required should not be begun. Besides saving trouble, owing to many of the diseased lashes coming away with the scabs, it is then easier to see from the little ulcer pits which lashes it is advisable to pull out. When from the raw surface thus exposed there is found to be an exudation in which there is an evident admixture of pus, which is only rarely the case, and only in the strumous variety of blepharitis, it is well to paint the lid margin over once with a five-per-cent. solution of nitrate of silver, dabbing the solution well into the ulcers with the camel's-hair brush. This should be followed up by the use, three or four times daily and for a quarter of an hour or so at a time, of compresses soaked in a one-half-per-cent. solution of the neutral subacetate of lead. After these have been used for a few days, recourse may be had to the yellow oxide ointment. When the blepharitis is associated with phlyctenular conjunctivitis or keratitis, it is best to use the mercurial precipitate, according to the prescription already given. If it exists alone, the following preparation may be used instead:

℞ Hydrargyri oxidi flavi, grs. x;  
Vaselini albi, 3 ss.

This should be well smeared along the lid margin morning and night.

Occasionally from neglect, or owing to some particularly marked delicacy on the part of the patient, often from both combined, and always in young children, the lid margin inflammation is not only ulcerative, but is associated with a great deal of deep infiltration, so that the tissues of the lid, and especially the tarsus, are much swollen and thickened. In such cases the ordinary treatment is of no use. As the eyelash follicles are then irretrievably destroyed, and there is consequently no use attempting to save them, the best treatment is to freely scrape away the ulcerated tissues with a small Volkmann spoon, and then undermine the skin and transplant it over the comparatively healthy raw surface which is left.

The general treatment in the case of the

strumous variety of blepharitis should be on the same lines as that already discussed in connection with phlyctenular keratitis. Dark glasses should be worn outside in summer, and also in winter when there is snow on the ground. The skin should be kept clean by frequent baths, and cod-liver oil or syrup of the iodide of iron given internally.

In a number of cases of less severe blepharitis, which do not rapidly improve by the use of the yellow oxide ointment, efficiently applied after the scabs and crusts and diseased eyelashes have been removed, it becomes advisable to slit up the canaliculi. This should always be done, as already explained, when any regurgitation of mucus or muco-pus can be got by pressure over the tear sac. But whether such regurgitation be found or not, the little operation is indicated wherever a blepharitis exists for a long time on one side alone. In such a case it often happens that the blepharitis rapidly disappears without any further treatment, although it may previously have resisted other therapeutic measures. There is not, however, the same justification for early interference of this kind in bilateral cases. In them it should not be undertaken, unless there should either be definite evidence of a catarrhal state of the mucous membrane of the tear passages, or a decided rebelliousness to the treatment recommended above.

The eczematous variety of blepharitis, besides being practically only met with in adults, never assumes the impetiginous type which characterizes so many cases in strumous children. Hyperemia of the lid border with a scaly crusting, and sometimes a sort of herpetic eruption, are the appearances presented by this form. In the milder degrees the lid margin has a look almost as if it had been dusted over with flour, although the numerous small scales are hardly as white.

The treatment should consist in frequent bathing with warm water, the lid margins being well rubbed with a wet pledget of cotton-wool. A little zinc ointment may also be smeared on in the morning after the bathing. The following ointment may be used:

℞ Zinci oxidi, grs. viij;  
Vasellini albi, 3 ss.

Or, the crusts may first be rubbed off with the cotton-wool soaked in a little spirits and water (about one part of whiskey to three of water), and then the following ointment rubbed in:

℞ Ichthyoli, ʒ ij;  
Aque destillatæ, f 3 ss;  
Lanolini, 3 ss.

Attention should be paid to the conditions under which the eyes are used, and sources of irritation, such as dust or smoke or impure air, as far as possible removed. Dark glasses are also sometimes useful. Further, it is always advisable to correct any existing error of refraction, especially for near work. In troublesome cases it is well to recommend an anti-gouty diet. It is especially important to knock off alcohol, especially if, as is often the case, it happens to be more freely indulged in than necessary.

A condition which is often complained of, and generally more on account of its unsightliness than for any great discomfort to which it gives rise, is a sort of blind pimple of the lid margin. Usually there is only one, though occasionally there may be several, elevations of this kind at different parts of the margin. The pimple appears as a uniformly red conical elevation. Its base occupies mostly the portion of the flattened lid margin which is in the neighborhood of its free outer edge. Often there are epithelial squames at other parts, indicating a slight degree of blepharitis, but this association may be quite absent. These pimples occur mostly in adults, and often in cases which present more or less evident arthritic symptoms.

The question of treatment has most often to be considered in the case of ladies, who are often sensitive as to the disfigurement which the condition causes. No doubt there may be some degree of local discomfort as well. The actual disfigurement depends partly upon the size, of course, but mainly on the degree of congestion which the little prominences present. The natural duration of the pimples is variable. They may only last a few weeks, but often remain in much the same state for many months. Usually, however, in the chronic cases, the redness, which at first is marked, tones down to a great extent, so that the adventitious tissue assumes nearly, if not quite, the color of the rest of the lid margin, and consequently becomes much less apparent. On everting the lid there is always found to be a little circumscribed area of hyperemia of the conjunctiva, roughly triangular in shape, with its base directed to the portion of the lid margin on which the pimple has formed. In chronic cases there is always to be seen a yellowish streak coursing down the middle of the hyperemic patch. This is simply a Mei-

bomian duct blocked with secretion which has become more or less calcareous. Even in recent cases it is usual to find a degree of transparentness in the middle of the congested conjunctival area, behind which some whitish secretion in the duct shows itself.

The treatment consists in emptying out this retained secretion. This can be done at first by simply pressing the affected portion of the lid between the two thumb nails, which causes the natural exit at the lid margin to burst open and give escape to a sebaceous-looking secretion. In cases which have lasted for some time it is necessary to incise from the conjunctival surface, making the cut along the yellow streak referred to, and up to the base of the pimple, and then to press out the contents. The pimple itself in either case then quickly disappears. In recent cases it almost immediately loses its hyperemia, and this of itself is always a cause of satisfaction to a patient who has been mainly annoyed by the unsightliness which it has produced. Not infrequently there are found to be other little patches in the lid of the same nature, though rarely as large, but which are not complicated by the protrusion at the margin. These should be treated in the same way, and preferably at the same sitting. An astringent lotion may be used for some time afterwards.

#### THE TREATMENT OF ARTICULAR RHEUMATISM.

The following formulæ are given in the *Revue de Thérapeutique Médico-Chirurgicale* of December 13, 1897: Absolute rest in bed and a diet consisting exclusively of milk, broths and eggs, hot drinks in abundance, and in each liter of liquid thirty grains of the nitrate of potassium. Envelop the affected joints with an ointment, applied after the following liniment has been rubbed in:

- ℞ Laudanum,  
Chloroform,  
Olive oil, equal parts.

The ointment should consist of ten per cent. of salicylic acid with lanolin. Internally the salicylate of sodium may be given in the dose of one to two drachms a day. This should be kept up for two days, when it should be slightly decreased. Full doses are, however, necessary. There are several ways of administering it: First, in cachet. This is a method which is not to be recommended, as it is apt to irritate the stomach. The same

difficulty exists with solutions of the drug. A useful formula is as follows:

- ℞ Salicylate of sodium, 3 drachms;  
Rum, 1 ounce;  
Syrup of orange flowers (bitter),  
Distilled water, of each 3 ounces.

A dessertspoonful to a tablespoonful of this at a dose. Sometimes the salicylate of sodium may be given by rectal injection. Thirty grains of it is placed in four ounces of water and given once, twice or three times a day. Before the injection is given the bowels should be well washed out. The contraindications to the use of salicylate of sodium are alcoholism, pregnancy, arteriosclerosis, old valvular cardiac lesions, cerebral rheumatism, and nephritis. In some cases where the salicylate of sodium is contraindicated, salophen may be given in the dose of forty-five to seventy grains in cachets. Antipyrin, while it does not cure the rheumatism, may be used to relieve the pain in doses varying from ten to forty-five grains a day. It may be given in solution in ordinary water or in Vichy, or by means of rectal injection.

#### A NEW OPERATION FOR THE RADICAL TREATMENT OF CANCER OF THE CERVIX, CONSISTING OF THE REMOVAL OF THE UTERUS AND VAGINA EN MASSE BY THE SUPRAPUBIC METHOD.

WERDER writes in the *American Journal of Obstetrics* for March, 1898, detailing his methods. He thinks that the radical operations as ordinarily performed for the cure of malignant disease of the uterus are, to say the least, unsatisfactory, as is shown by the large percentage of recurrences within a comparatively short period, and by the number of modifications in the technique recently recommended by different operators for the purpose of improving our permanent results. That the cause of failure is largely due partly to our inability to operate in strictly healthy tissue in cancer of the cervix, especially when extensive and involving the greater part of the vaginal portion, and partly to an inoculation of healthy tissue with cancer cells during the course of operation, the author thinks can be demonstrated by the fact that in the large majority of cases the disease returns in the vaginal cicatrix left as the result of a hysterectomy, whether vaginal or abdominal. Such, at least, has been his experience in all the cases in which he was able to observe the subse-

quent course of the disease. In order to obtain better results it is, therefore, essential to do more radical work at the seat of disease, viz., the cervix and vaginal fornices, which are in contact and frequently more or less extensively involved in the disease. It is these latter particularly—*i.e.*, the vaginal fornices—which cannot always be removed to a sufficient extent to insure operating in absolutely healthy tissue by the ordinary vaginal or suprapubic methods of hysterectomy, on account of the proximity of the bladder, rectum, and ureters.

For some time the author has been convinced that the removal of the vagina, or at least its upper portion, with the uterus is the only method which enables us to completely extirpate the diseased parts in cancer of the cervix. It occurred to him that the technical difficulties connected with such an operation could be successfully overcome by opening the abdomen, severing the uterus as in ordinary hysterectomy, and freeing the bladder from it; with this difference, however, that the dissection is extended down along the vagina, separating the anterior wall of that canal from the bladder as far down as we wish to remove the vagina. The recto-vaginal space is then entered, and the posterior vaginal wall is stripped off the rectum as far down as necessary; finally the lateral attachments of the vagina are loosened. The uterus and vagina having thus been entirely freed, that organ could be pushed down into the pelvic outlet, the vagina being inverted by making traction from below until it could be amputated above the prolapsed fundus. All this could be done without touching the diseased cervix with the fingers or allowing it to come in contact with any wound surfaces, thereby absolutely excluding the possibility of inoculating healthy tissue with cancer elements.

The feasibility of the operation briefly described above having been tested and confirmed in the post-mortem room, an opportunity for its practical execution presented itself on the living subject January 5 of this year.

The patient, Mrs. D., aged forty-five, mother of four children, the youngest of whom is nineteen years old, was referred to the author by Dr. C. M. Cameron, who had made a diagnosis of cancer of the cervix in February, 1897, almost a year ago, and advised operation, which was, however, refused until hemorrhage and a very fetid discharge compelled her to get relief. When she came

under his notice she was anemic and weak. The vaginal portion of the cervix was the seat of a cauliflower growth completely filling up the upper portion of the vagina and invading the anterior vaginal pouch. The uterus, however, was still movable, and parametria free. Radical operation seemed, therefore, still indicated and advisable. It would have been exceedingly difficult to keep at a safe distance from the diseased area in the vagina, especially at the anterior vaginal wall, in the usual vaginal or suprapubic hysterectomy, and the case seemed especially suited for the operation under consideration.

The patient having been anesthetized, the whole vaginal portion was very easily removed by a sharp spoon curette, as it was completely broken down by the disease. The remaining bleeding surface was seared over with the thermocautery. The patient was then prepared for laparotomy. Both ovaries and tubes were found adherent, and the left tube distended with about an ounce of creamy pus. After the ovarian arteries were secured the bladder was separated, not only from the uterus, but also from the broad ligaments on either side as far as possible, so as to get the ureters out of the way. This opened up both broad ligaments, and the uterine arteries could be easily traced over to near the pelvic bones, where they were tied without difficulty. An assistant having inserted two fingers into the vagina as guides, the dissection between bladder and vagina was then carried down to within about an inch of the vulva. The sacro-uterine ligaments were then divided with scissors, the rectum separated from Douglas' pouch, and, with two fingers, the dissection extended down to the lower half of the vagina. The lateral walls of the vagina were then freed from their attachments. The uterus and vagina were now only held by the base of the broad ligaments, which were very firmly bound to the vaginal fornices, the separation of which formed the only really difficult part of the operation. This having been accomplished and the broad ligaments completely divided, the finger could be passed all around the uterus and vagina, and at no place had the vaginal tube been opened. The loss of blood during the whole operation was insignificant. The uterus and vagina were then pushed down into the pelvic outlet, and the bladder with its peritoneal flap drawn across the pelvic cavity and stitched over the rectum to the posterior wall of the pelvis, thereby completely shutting off the pelvis from the general peritoneal



cavity and covering up all raw surfaces with the peritoneum. The abdomen was closed in the usual manner.

The operation having been done in the Trendelenburg posture, the patient was now placed in the ordinary lithotomy position. The uterus, which was protruding at the vulva, was seized with vulsella forceps and drawn completely out of the vulvar orifice with the inverted vagina. With a finger in the rectum and a sound in the bladder, as safeguards against injuring those organs, the inverted vagina was amputated with the thermocautery.

An inspection of the cavity showed a large raw cavity lined in front and above by the bladder, behind by the rectum, about four inches of which was completely exposed, and below by a very short vagina. The cavity was lightly packed with gauze and the patient returned to bed. Duration of operation, two hours.

The specimen consisted of the uterus with the right ovary and tube attached, the left one, filled with pus, having been removed earlier in the operation, to prevent soiling the field of operation. To the cervix was attached at least two inches of the vagina. The patient was suffering from considerable shock, from which she recovered rather slowly. After the third day, however, her condition became entirely normal, and her convalescence was interrupted only by a slight parotitis, which subsided in a few days. Examination of the pelvis on the tenth day showed a very small cavity above the remaining vagina, observed with healthy granulations, in which the bladder and rectum were no longer recognizable.

The operative technique the author found much easier than he had anticipated, and not more difficult than a total abdominal hysterectomy. After a little experience he thinks it should not consume more time than the latter operation. He would suggest the use of rubber gloves for the preliminary curettement, to keep the hands aseptic and to avoid contact with cancerous tissue, thereby not only preventing any danger of septic contamination, but also excluding with absolute certainty the possibility of inoculation.

The operation seems an ideal one for the treatment of cancer of the cervix, because we can do a more radical operation than by any other method, and we can remove that part which, on account of its proximity and anatomical relation to the original seat of disease, is earliest invaded, but by our pres-

ent methods most difficult to reach. It should give more permanent cures, even in advanced forms, because we can not only extirpate the vagina or as much thereof as may be deemed necessary, but we can excise the greater part of the broad ligaments if we take the precaution to carefully push aside the ureters with the bladder. It enables us also to get at the iliac glands without much additional trouble or difficulty, should we regard their removal as necessary.

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*OPERATION FOR THE RESTORATION OF  
THE URETHRA AND FOR THE  
CLOSURE OF A VESICO-VAGI-  
NAL FISTULA INVOLV-  
ING THE NECK OF  
THE BLADDER.*

C. P. NOBLE tells us in the *American Journal of Obstetrics* for March, 1898, that operations for the closure of vesico-vaginal fistulæ have been so perfected that the closure of such fistulæ, at one time the despair of surgeons, can now be accomplished with the certainty of success in almost all cases, even those involving the most extensive destruction of the base of the bladder. Fistulæ involving the neck of the bladder are among the most difficult to close, and cases complicated by destruction of the urethra have long taxed the ingenuity of surgeons. Fortunately, such cases are rare, and but few gynecologists, even those of extensive experience, have met with them. Probably Dr. Emmet has had a larger experience in dealing with such cases than any other operator. He states that he has succeeded in restoring the whole urethra by plastic surgery in six or seven cases, and only partially so in others. Emmet portrays most vividly the difficulties of these operations, and states that he is less inclined than formerly to operate upon them because of the slim chances of success or permanent benefit from such procedures. Olshausen reports three cases in which he has performed the operation of restoring the urethra. In two of the cases he was successful, but the third was a failure. The author has not had time to make a careful search through medical literature for all the operations reported, but there is no doubt that the number is small. The following case has come under his own observation, and he reports it as an encouragement to others to attempt the cure of similar injuries:

Mrs. S., aged fifty-two, white, American, the mother of three children, had had good health until 1896. Nothing in her history

bears upon the subject of this report. At the age of forty-nine she noticed, especially when tired, a throbbing, referred to the rectum. On account of the continuance of this symptom, in March, 1896, she consulted a physician in Reading, Pa., who stated that an immediate operation was required to prevent invalidism. The operation was performed and was followed by some leakage of urine, which became profuse after the removal of the stitches on the eighteenth day. The primary operation was said to be for the removal of a "blue spot" on the anterior vaginal wall. In the attempt to repair the opening in the bladder the doctor operated seven times. Four of the operations were performed without general anesthesia. From the patient's statement it is apparent that various suture materials were employed in the different operations, including harelip pins; after some of them a drainage catheter was used, and after others it was not employed. All of the operations failed. At this time a mass projected through the fistulous opening, which she was told was a polyp, and it was proposed to remove this. She then consulted her family physician, who told her that the supposed polyp was the prolapsed wall of the bladder. This resulted in the discharge of the doctor who had made the fistula, and, upon the advice of her family physician, a well known gynecologist was called in, who operated upon her twice in Reading and twice in a hospital in this city. Union was not secured.

Mrs. S. consulted the author November 16, 1897, and on examination he found that the entire inferior wall of the urethra was gone and that a fistula existed involving the neck of the bladder. The situation of the urethra was marked by a strip of mucous membrane continuous above with the vesical wall. The opening into the bladder was large enough to admit the index-finger. The edges of the fistula were cicatricial, and upon each side of the urethra extensive cicatrices were present, probably the result of incisions made at the various operations to relieve tension on the sutures. After some of the operations there must have been considerable destruction of tissue, as a large amount of cicatricial tissue was present.

The mental condition of the patient was very bad, being due, doubtless, to the failure of the eleven operations to effect a cure and to the constant annoyance of the discharge of urine. November 20 the author operated upon her at the Kensington Hospital for

Women. As a preliminary he procured a Sims sigmoid metallic catheter, whose diameter was one-third that of the usual catheter. The operation was performed as follows:

An incision was made along the edge of what corresponded to the original mucous membrane of the urethra, from the meatus to the bladder. External to this line of incision a raw surface was made upon each side of sufficient breadth to make a firm urethral wall. The edges of the fistula into the bladder were then denuded, an effort being made in the denudation to secure as small a neck to the bladder as possible. Deep incisions were then made, parallel to the long axis of the vagina, upon each side of the proposed urethra, to secure flaps out of which to form the new urethra. On the left side it was necessary to detach the soft parts entirely from the pubic bone in order to overcome tension.

The sutures were introduced in the following manner: The small catheter was introduced and held in position; over this was sutured, with a running suture of No. 1 cumol catgut, the mucous membrane of the bladder and that of the new urethra; interrupted silver-wire sutures were then introduced to close the opening into the bladder and to form a new urethra. An effort was made to pass the sutures at the neck of the bladder in such a way as to catch, if possible, the muscular fibers which form the sphincter vesicæ. The silver-wire sutures were then twisted and tightened, closing the fistula in the bladder and building up a new urethral wall. To reinforce this line of sutures, and to secure an even better approximation, a silk-worm-gut suture was placed between each of the silver-wire sutures. Sutures were then passed in the direction of the axis of the vagina to close in part the incisions made at each side of the restored urethra, and more especially, by approximating the ends of these incisions, to still further guard against tension on the restored urethra. The deep incision on the left side was then packed with gauze. The operation lasted about one hour and a quarter.

The next problem was to secure healing, and the author determined to leave the catheter *in situ* until the newly formed urethra had firmly united. After two days the catheter became blocked by a deposit of urinary salts, after which time the bladder was washed out daily with boracic acid solution to overcome this difficulty. The catheter

ter remained *in situ* until the twelfth day, after which it was removed daily for cleansing. The line of union healed by first intention throughout, although the tissue which made up the left side of the restored urethra was cicatricial in character and its vaginal aspect was bare of mucous membrane. Three weeks after the operation the deep incisions had filled up by granulation and only a small area remained for cicatrization.

The patient is able to retain her urine for from three to five hours, after which time she has not perfect control over the bladder and is apt to discharge a small quantity of urine if the bladder is not promptly evacuated.

The author would like especially to call attention to two points in the technique of the operation, as he believes a successful result was dependent upon them. The first was the use of a very small catheter, which was left in position until primary union had been secured. He felt, and still feels, certain that an attempt to pass a catheter through a somewhat distorted canal daily or more frequently would result in the perforation of the canal and failure of the operation. The second point was the method used in suturing. By first restoring the mucous lining of the canal with a continuous catgut suture, it was possible to insure a narrow urethra of uniform diameter, and in the subsequent restoration of the wall of the urethra it was possible to disregard the urethral canal and to consider merely the building-up of a firm urethral wall. It was possible also to study the problem of tension more carefully. It was found necessary to make a very extensive detachment of the soft parts from the pubic arch in order to secure a flap of tissue without tension.

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THE ASCH OPERATION FOR DEVIATIONS  
OF THE CARTILAGINOUS NASAL  
SEPTUM, WITH A REPORT  
OF TWO HUNDRED OPERATIONS.

MAYER writes in the *Medical Record* of February 5, 1898, on this topic. He begins by telling us that deviations of the cartilaginous septum may be of recent origin, or they may have existed for a long time. If of the former class, they are invariably due to some form of violence, while in the latter they may have other causes due to some faulty development, being practically congenital in their origin.

When they are of recent origin the surgeon is most apt to be consulted. If of long standing they are generally discovered by rhinologists in their search for the cause of the train of symptoms complained of and which they occasion. These symptoms are mainly permanent obstruction to respiration on one side, mouth breathing, dryness of or excessive secretion in the throat, constant rasping, fitful sleep, nasal voice, epistaxis, aural diseases, diminished hearing, persistent headaches, and many reflex disturbances. It frequently happens that the patient is not aware of the nature of the diseased state which causes his complaints.

Deviation of the cartilaginous septum may be defined to be a deflection from the normal straight line to one side, filling the nasal cavity more or less completely, accompanied by a corresponding depression on the side opposite. For simplicity of description the deflected or obstructed side is called the convexity, the other the concavity. It offers no difficulties in the way of diagnosis, and can be ascertained to exist by either or all of the following methods: Obstructing the nostril on the concave side and requesting the patient to blow—either no air or a very thin stream is felt upon the hand. Reversing the procedure, a full, free current is obtained. By dilating the nostril with a speculum, or even raising it with the finger, the deviated portion is readily seen, the convex side filling the nasal space. Touching with a probe reveals its firmness. Cocainizing produces no retraction, and usually the probe, having passed beyond the obstruction, readily enters the nasopharynx.

Perforations occur in about two per cent. of the operated cases, are usually about the size of a pin's head, and are caused by the curling up and sloughing of the edge of one of the segments. In no single case was there any alarming hemorrhage, either at the time of operation or subsequently. No septic conditions resulted, no disagreeable after-effects; no disturbance traceable to the operation occurred, nor was there at any time any danger to life. These results are the more remarkable in that these operations were performed upon dispensary patients, whose physical conditions are rarely of the best.

There are two separators, one with a blunt edge and the other sharp, to break up any adhesions existing between the septum and the turbinate on the affected side, as also to destroy any posterior obstructions. The scis-

sors are of two sizes. These are powerful instruments, curving outward from the point of crossing and meeting again in front. One blade is blunt, while the other is sharp with a triangular blade, the apex of which is at the tip. The other scissors are made with the blades bent at right angles, and are occasionally necessary for those deviations that lie low down on the floor of the nose.

There are two compressing forceps, one having a long and the other a short beak.

Hollow tubes of vulcanite are made with a slight curve on the under surface, in accordance with the normal curve at the entrance of the vestibule of the nose. These tubes have perforations to prevent their slipping out when inserted. They are of different sizes and shapes. Those known as the Asch tubes are of five sizes, somewhat oval in shape, and those known as the Mayer tubes are of six sizes, more oval, and considerably flatter on the sides. These vulcanite tubes are so prepared that they retain their shape when subjected to the heat of a sterilizer.

The operation is best performed under complete anesthesia. Cocaine does not appear to be of value here, it being necessary that the patient be recumbent, and in the efforts to dislodge the blood flowing into the pharynx the operator is seriously interfered with. The nose is sprayed out immediately preceding the operation, for which purpose an alkaline antiseptic, like the Dobell solution, is used. The usual preparations for anesthesia are made, ether or chloroform being the anesthetic used. All instruments are carefully sterilized. The use of an antiseptic spray and the sterilization of instruments for an operation when the air cannot be excluded either before or after operation may be explained by stating that we know that by such care we are surely not adding any infection by our operative procedure. Complete anesthesia is required. The cone being removed, it never becomes necessary to have recourse to it again, as the operation is rapidly performed and completed before consciousness is regained.

The head is well drawn backward, in order that blood may not enter the larynx, the table being so placed that either the direct or artificial light may be used.

The blunt separator is now introduced sideways on the deviated side, in order that any adhesions existing between the septum and its adjacent mucous membrane may be broken up, enabling us at the same time to ascertain the presence of bony obstructions

posteriorly. Should these latter exist or the adhesions be non-yielding, the separator with sharp edges is required; this, however, is rarely necessary. There may be some hemorrhage after the adhesions are broken up, but it is readily checked by an iced spray, or by pressure of cotton applicators. The open scissors are now introduced parallel to the floor of the nose, the blade in the concavity, the blunt edge over the point of greatest convexity. They are then firmly closed, the blade cutting through the cartilage into the opposite side with a distinct snap. The scissors are then opened and completely withdrawn. They are immediately reintroduced, the direction of the instrument being upward this time, pointing to the frontal bone, the blade being in the cavity and crossing the line of the first incision at as nearly a right angle as possible, and at its center. In this way the incisions will intersect each other. The scissors are now firmly closed and the second incision made, after which the scissors are opened and withdrawn.

We now have four segments as a result of this crucial incision. The finger is then introduced in the deviated side and the segments are forcibly pushed into the concavity, effectually breaking them at their base.

The powerful blunt forceps is now introduced, one blade in each nostril, and firmly closed, thus straightening the septum and forcing the broken segments to override each other in the concavity. The compression aids also in controlling hemorrhage, and the parts are firmly held in apposition. An iced antiseptic solution is sprayed in both nostrils, the forceps being withdrawn. The sterilized tubes are then introduced in the nose, a snugly fitting one on the stenosed side and a smaller one in the opposite nostril, thus causing equable pressure, their presence being usually all-sufficient to control hemorrhage. The operation is now completed. The amount of blood lost varies with each individual, but is invariably promptly checked when the pressure is applied.

The patient is placed in bed, cold antiseptic sprays are used half-hourly, and iced cloths are applied externally.

Twenty-four hours after operation the tube in the formerly concave side is withdrawn and not replaced. The antiseptic spray is used once every hour or two and the compresses are continued. Twenty-four hours later the tube on the stenosed side is removed and

thoroughly cleansed. The nose is freely sprayed and cleansed with cotton probes, cocaine being used if sensitive. The same tube is reinserted, unless too large for comfort, when a smaller one is used, the rule being to use a tube large enough to be introduced without force, and yet to fill the cavity, no part of it protruding from the nostril. On this day patients are permitted to arise from the bed and assume other than a recumbent posture, the compresses being discontinued. On the third day the tube is again removed, cleansed, and reinserted, and the patient allowed to go home. For the next three or four days the patient presents himself daily for the removal, cleansing, and reinserting of the tube. At each time of removal the nose is thoroughly cleansed and freed from secretions and clots. Within the first week the patient has learned to extract and reintroduce the tube himself, in the presence of the surgeon, and thereafter performs it once or twice daily at home. The directions are given to remove the tube, spray out the nose, or insufflate warm salt water to which an alkaline antiseptic is added, and then to reintroduce the cleansed tube. The extraction and reinsertion of the tube are quite painless after the first week, and it is remarkable how easily the youngest patient becomes accustomed to it. The patient is now seen once or twice a week for the next four weeks, at the end of which time—five weeks from the day of operation—the tube is finally withdrawn for all time.

The mass of bent cartilage has disappeared, the septum has become straightened and remains so, and very often the external deformity no longer exists.

Sometimes during the five weeks that the tube is in it may appear that the septum is bulging greatly on the stenosed side, but it is well to leave it quite alone, as the constant pressure reduces it finally, for there seems to be a resorptive process going on.

It occasionally happens that the lower segment remains thickened after the five weeks have elapsed, and presents the appearance of a spur or enchondrosis. This is treated as such and removed by the electro-trephine or galvano-cautery. The latter has worked splendidly in the author's hands, especially in nervous individuals and children. The parts are cocaineized and then cauterized with a platinum knife. There is no bleeding and the patient is not aware of any operative procedure. A light packing of iodoform or subli-

mate gauze is introduced daily for the next few days after cauterization.

During the five weeks that the tube is in place, excepting the first three days, the patient resumes his usual vocation—children go to school, and adults find no interference in their work.

The segments which were pushed into the concavity, thus destroying the resiliency of the cartilage, overlap each other, become firmly adherent, and in a short time there is no evidence of any unusual condition whatever.

The advantages of the tubes can hardly be overestimated, establishing comfort at once by allowing air to pass through, and acting as splints to keep the septum straight; the readiness with which they are removed and reinserted making them infinitely superior to the original method employed of packing with absorbent cotton about a tin splint.

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*A CASE OF RESTORATION OF THE FEMALE URETHRA AND CLOSURE OF THE BLADDER, AFTER EXTENSIVE LACERATION.*

In the following case, reported by RICHARDSON in the *Boston Medical and Surgical Journal* of March 3, 1898, Thiersch's principle, used in restoring the urethra in cases of epi- and hypo-spadias in the male, was successfully employed. This principle is applied to the female urethra and bladder, and consists in the use of extensive flaps superimposed in such a manner that the internal surface of the urethra and bladder is supplied by vaginal mucous membrane; at the same time the denuded vaginal surface is restored by shifting a flap sufficiently large to cover it.

The patient, Mrs. M., aged twenty-six, had had in May, 1897, a very difficult labor. The attending physician found a deformity of the bladder and an exaggerated hymen. There had never been any penetration. With the patient on the table in the dorsal position, no opening in the hymen could be found. The child was delivered with difficulty and with the use of instruments.

After confinement there was inability to control the bladder. On examination the author found an entire absence of the urethra. There was in its place an irregular line of everted mucous membrane extending a half inch back into the base of the bladder.

A flap was first made to the patient's right of the fissure and corresponding to it in

length. The base of this flap was the line of everted mucous membrane. Turned toward the left, this flap presented its mucous surface upward, and was destined to be the floor of the urethra. The second flap, on the patient's left, was a little longer than the first, and began at the left edge of the everted urethra. This flap had its base about half an inch to the left of the urethra. A catheter was next placed in the urethra, and over it the first flap was spread. This flap was fastened to the denuded surface of the second flap by four silk sutures. The catheter was covered in by vaginal mucous membrane. The second flap was then brought over the first and to the right, where it was fastened by numerous fine silk stitches.

It will be seen that mucous surface was brought to mucous surface, and raw surface to raw surface. Immediate union resulted without leakage. The patient not only had a tight bladder, but she could control it. Since operation there has been no loss of control, but micturition is frequent, especially when she is erect.

This method of closing the fistula presents a double chance for success; for if the mucous approximation is imperfect, as it is likely to be from the impossibility of using sutures, the denuded surfaces, opposed to each other over comparatively broad areas, can be most closely approximated and accurately sutured.

The author has used the method very successfully in restoring the male urethra. The difficulties in applying it to the female are somewhat greater, for in addition to the restoration of the canal the power of controlling the bladder through the sphincter vesicæ is essential. In this case the functions of this muscle were completely restored.

#### THE MEDICAL AND SURGICAL TREATMENT OF HARELIP.

MUMFORD reminds us in the *Boston Medical and Surgical Journal* of March 3, 1898, that no two cases of harelip are alike. They vary as much as do the faces which they deform; and so, from the simple notch in the border to the double harelip with complete cleft palate, each case must be treated on its own merits. And yet they have not been so treated; nor have the operators, in many cases, seemed to appreciate the importance to the individual of a natural and sightly mouth. As to the child's parents, they are easily satisfied and but too well pleased to have a

hideous cavity bridged over in any fashion. With all these varieties of deformity, however, there are two main divisions for surgical purposes: those lips which are backed by a sound jaw, and those which are continuous with the nostril and a palatal cleft. In the former class the mortality is *nil*, so far as the lip is concerned, whether treated or not. In the second class the mortality is high when untreated—by some writers placed as high as thirty per cent.; when treated the mortality ranges from two to fifteen per cent., according to Fritsche. These deaths are ascribed in all cases to malnutrition, hemorrhage, or bronchitis. In the author's opinion, by very far the most important factor is malnutrition. We hear of harelip babies, vigorous, puny, well nourished, and rachitic; and the appropriate time of treatment for each. As a matter of fact, most of these babies are well enough at birth, and their subsequent condition depends largely upon the care and intelligence used in their feeding. If this care be used, the average infant can be brought comfortably up to the sixth or eighth week—the proper time for a harelip operation. Operations done earlier must be hurried and ineffectual for cosmetic purposes; if done later, except in the simple cases, the advantages of an early molding of the nose and lateral pressure upon a cleft upper jaw are in a measure lost.

This highly important preparatory feeding of the patient is in itself an art, and if outside the experience of the surgeon, should be entrusted to some one skilled in infant feeding. In the author's experience its successful prosecution influences very largely the result of the subsequent operation, and its effects are felt even up to the period of dentition.

Ordinarily there is no difficulty in giving the modified milk mixtures prepared in the laboratories for infant feeding. These mixtures with an alkalinity of five to six per cent. answer all practical purposes. When milk laboratories are not accessible, home modification may be done.

In administering the milk there are a few practical hints which should be borne in mind. The food is best fed from a spoon; the various shields and patent nipples are needless and troublesome. The child should be placed on the bed in a half-reclining position during feeding, because when prone the milk is more likely to run up into the nares. If there is a cleft palate, the most scrupulous care must be observed to keep clean the mouth and nares; for this a cotton

stick dipped in a weak boric acid or borax and water solution is best. Plenty of clear water to drink should be given between feedings, as the mouth necessarily is very dry, and by the use of the water a proper action of the bowels is maintained. Stimulants should be given if there is pallor or a flabby skin—one or more drops of brandy with each feeding. The brandy should be increased for two days before operation, and on the day of the operation, in any case, a goodly measure should be allowed.

Most authorities are now agreed that chloroform is the best anesthetic for the operation, on account of its non-irritating action on the lungs. This may be so; but in some considerable experience with ether the author has seen no cause to complain of it, and he sees to it that it is properly given. He likes its stimulating effect.

As to the time for the operation itself, he makes one exception to the rule he lays down. In simple notched lips not extending to the nostril, he thinks it well to wait until the child is three or four years old, as he can then be trusted to manage the wound carefully, and a most exact plastic operation can be done with the more mature tissues.

In these cases, and indeed in all others, so far as ultimate beauty of result is concerned, the greatest attention must be paid to the finish of the vermillion border. For this purpose the Nelaton or Malgaigne operations are the only ones to be used. The old-fashioned slashing cuts with scissors, and the quick sewing up, are bad surgery, and should never be used except when desperate hurry is demanded.

There is a large variety of other flap operations described by authors—Hagedorn's, Mirault-Langenbeck's, Simon's, Giralde's, and many more. They are all designed on the dove-tail principle, their object being to fill in the cavity and provide a smooth, red-lip border. In practise the author does not think them applicable to infant lips. They sometimes answer admirably for older children and adults, but not for restless, crying babies. At best, they leave an irregular scar instead of a straight line, and there not infrequently results an ugly notch in the lip border.

It is not necessary here to go into the treatment of the intermaxillary bone. Suffice it to say that it can usually be forced into position and utilized. In very rare cases it must be sacrificed.

It has been claimed by some writers that

double harelip operations should be postponed until the second or third year of life, but the author prefers to do them within the first two months, if possible, for he is convinced that the same advantages apply to the early operations in these cases as to those of single harelip. In all operations, except for a simple notch, the soft parts about the alveolar processes and nares should be dissected free from the upper jaw with blunt-pointed scissors. By clinging closely to the bone, no hemorrhage will result. When the flaps are being cut the coronary arteries may be controlled easily by an assistant's fingers. Scissors should not be used in cutting the flaps. They are inaccurate, sometimes bruise the tissues, and do not leave so clean and broad a cut surface. A narrow-bladed knife is best.

The old-fashioned harelip pins have gone out of use, and very properly. Even when removed on the third day—the old rule—they leave a scar; and the third day is too early for the removal of deep sutures. In all operations, for both double and single harelip, one shotted stitch of silver wire is sufficient to anchor the parts. It is inserted in the fold behind the *alæ*, lies in that natural furrow, takes all the strain off from the severed deep parts, holds in place the intermaxillary bone, and leaves no perceptible scar. When this stitch has been placed and the parts approximately brought into position, the question of passing the remaining stitches is one simply of time and patience. In all extensive operations, and always in the case of babies, the author has adopted the method of J. C. Warren. Working with a stout silk suture, threaded with a needle at each end, the stitch is entered close under the skin, in the freshened lip border, is passed deeply through the underlying soft parts and buccal mucous membrane, and tied strongly to its fellow inside the mouth. Three or four of these heavy stitches suffice to hold the parts firmly in excellent apposition; when tied, the ends should be cut long. The slight gaping in the skin flaps of the external wound is closed with a few very fine intestinal sutures threaded in small embroidery needles, and are passed as closely as possible to the cut edges, the greatest care being taken not to draw them tight enough to invert the skin. The fine superficial sutures must be removed on the third day, and it will be found that no perceptible stitch scar results. The deep stitches are removed from the inside of the mouth on the fifth or sixth

day, and the wire bridge on the seventh or eighth day.

By no means the least part of the operation is the application of a proper sustaining strap from cheek to cheek. The old-fashioned adhesive plaster is a wretched device, and should never be used; it is unclean, sweats the parts, and checks any discharges which may collect. The familiar *crêpe-lisse* "butterfly" is the best support. It is light, clean, slightly, and does not check discharges. Before applying it, it is well to paint the wound inside and outside the mouth with compound tincture of benzoin, to lay a soft absorbent pad across the external wound, and then firmly to secure the "butterfly" with flexible collodion.

Silkworm-gut is sometimes used for sutures. It is applicable only when tied outside the lip. When so used it always leaves a scar.

For older children and adults, the author has had most excellent and satisfactory results with buried catgut. By its use only can an approach to an aseptic operation be made. The firm resisting tissues of an adult offer an excellent hold for the buried stitch, and if there remains a slight gaping of the skin it can be closed with the fine intestinal sutures.

An absolutely aseptic programme can never be carried out in any harelip operation, but some attempt should always be made to render the field approximately sterile. The constant use of boric acid washes both before and after operation should be maintained. At the time of the operation the upper lip should be thoroughly wiped over, inside and out, with alcohol, which in its turn is to be washed off with water.

During convalescence, especially after the removal of the stitches, some spreading of the upper part of the wound should not discourage the surgeon. As a rule, if the vermilion border holds, the open cleft above will heal, by the second intention, in two or three weeks. There is often a very anxious time about the end of the first week, but the holding of the border is a sure sign that all will yet go well.

No one feature in the whole treatment of harelip is of more importance than that of the feeding of young infants during convalescence from the operation. As an immediate result of the operation there is almost always a considerable gastro-intestinal upset. This is in part due to the anesthetic and in part to

shock, but by far the most important factor is the blood which has been swallowed. No matter what the form of operation or the position in which the child is held, a very considerable amount of blood finds its way into the stomach. If this is vomited, so much the better; but usually it remains and makes trouble. There then follow several days of diarrhea, undigested stools, pain, colic, sometimes loss of appetite, and occasionally vomiting. These symptoms may persist many days and do not infrequently most seriously threaten life. More often, however, they merely debilitate the patient, and seriously delay the healing of the wound. He has seen cases in which a total lack of success in closing the lip was obviously due to a low vitality in the wound through malnutrition in an infant hitherto perfectly healthy and strong.

Of the very greatest importance, therefore, is proper care during convalescence.

The ordinary rules for the treatment of an acute mycotic diarrhea are here applicable. On the evening after the operation a brisk purge should be given—castor oil or calomel; and the child should be put on a weak cream mixture. Sometimes even this is not borne, and a thin barley-water mixture or weak, strained chicken tea should be substituted for it. Meanwhile liberal doses of brandy should be given, and if diarrhea persists, bismuth subgallate, in three-grain doses or more, should follow each feeding. Gradually the diet may be strengthened as convalescence progresses, until the normal mixtures have been reached. At the same time plenty of water to drink should be given—a precaution most often neglected by uninstructed nurses.

A *résumé* of the important points in the treatment of harelip, therefore, will include the following considerations:

1. Harelip babies are not necessarily feeble at birth, and by proper feeding can be kept up to the normal standard.
2. Keep the field clean with aseptic washes before the operation.
3. Operate in the sixth to the eighth week.
4. Do not slash with scissors, but cut and trim carefully with a knife.
5. Free the upper lip thoroughly from the jaw.
6. Anchor the nares with shotted wire.
7. Use no pins or heavy outside sutures.
8. Use *crêpe-lisse*, not surgeon's plaster.
9. Leave the heavy inside stitches for six days.



10. After operation give especial attention to the care of the bowels and to proper feeding, as on this very often hangs the whole success of the operation.

#### FRACTURES OF THE SKULL.

POPE in the *International Journal of Surgery* for April, 1898, points out that fractures of the skull are not uncommon accidents, and present for consideration: (1) Trauma in its various modes of action, producing fractures of various kinds and degree; (2) local sequelæ such as hemorrhage, exudation, and inflammation; and (3) post-traumatic nervous sequelæ.

Complicated and compound fractures of the skull present danger in two directions: (1) danger that arises from direct injury to the brain and its membranes, and (2) danger of infection of the wound from within or without.

Trauma acting upon the skull usually affects the cranium in two general ways, with variations: (1) Local depressed fractures occupying a reasonably small area. Those fractures are, as a rule, not compound, and become so when they are produced by some sharp instrument. (2) Extensive fractures of the vault or base that are produced by trauma, so directed as to bring about a bursting effect, and in their results we find widespread injury to the brain and membranes.

Danger from serious fractures of the cranium, be they simple or compound, lies not in the fracture itself, but in the injury to the nerve elements or their destruction by subsequent infection or in the production of subsequent neural trouble, such as focal epilepsy. One of the latest works upon surgery, and another upon neurology, distinctly advise, if moderate symptoms of cerebral trouble develop, or if the cerebral symptoms are subsiding, or if they are known to be present, the treatment should be "expectant" (?), and interference by trephining should never be resorted to until the development of the later cerebral symptoms. Compound fractures, as a general thing, are opened and cleaned, trephining not often resorted to, especially in fractures of the base where expectant treatment is carried out; and the author's experience, limited though it be, and considered largely from the neurological standpoint, is against delay in operative interference. Trephining under aseptic precautions is in no sense a dangerous operation, and we can feel safe in desperate cases

that the relief in intracranial pressure will help the patient. Summing up shortly his experience on the subject, he says:

1. Operate in all cases of fracture of the skull, basilar or compound, and preferably in simple fractures.

2. Expectant treatment, in his opinion, is dangerous, permitting injury to the nerve structures.

3. Danger does not exist in fracture *per se*, but in subsequent injury to the nerve elements and tissues.

4. Failure to trephine and immediately remove the existing pressure, depression, hemorrhage, inflammation, or septic infection may result in the development of focal epilepsy and other cerebral diseases.

5. Little or no danger results from the operation.

6. These rules are doubly applicable to fractures of the base, owing to the danger to vital structures lying there.

#### THE SURGICAL TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

BRYSON DELAVAN, of New York, writes in the *Journal of the American Medical Association* of March 12, 1898, on this subject. He thinks that while operations for the cure of malignant disease of the larynx have generally resulted in shortening rather than lengthening the lives of patients so operated upon, the experience of the past few years in certain parts of the world has been somewhat encouraging. Indications are beginning to appear which suggest that for this class of patients there exists a not entirely unpromising future.

Within the past two years several papers have been published in which the proportion of successful operations has been unusually large, and while the actual number of patients operated upon has been too small to establish any positive conclusions, and the dates of most of the operations have been too recent to admit of a complete study of the cases themselves, there can be no question that the work recorded in them is, on the whole, worthy of careful consideration. The varieties of operation which have lately challenged attention by reason of the improvements which they have offered may be divided into three groups: (1) thyrotomy, with or without partial laryngectomy; (2) complete laryngectomy by the method adopted in Solis-Cohen's case; (3) complete laryngectomy in cases of extensive laryngeal

disease with glandular involvement. Examples of all three are beginning to multiply, to such an extent that it will not be long before we shall have a collection of details sufficient to afford a fairly positive knowledge of their real value, together with a fund of technical knowledge relating to the subject which cannot fail to be of material aid for future guidance.

1. Every malignant growth of the larynx of intrinsic origin which can be dealt with should be treated by an operation in the absence of a decided indication to the contrary, and the operation should be performed with the least possible delay.

2. Every tumor of the larynx suspected to be malignant, of intrinsic origin, of limited extent, and apparently within reach of free removal, justifies an exploratory thyrotomy in a suitable patient, in the absence of infiltration of the surrounding structures and of affection of the lymphatic glands.

The method of operating pursued by Butlin and Semon has been described in their published writings. It applies distinctly to cases in which the disease is absolutely confined to the interior of the larynx. Preliminary tracheotomy is done with the insertion of the tampon cannula and its careful adjustment. The anterior part of the thyroid cartilage is laid bare with scalpel and raspator; it is opened exactly in the median line, and the two sides of the larynx are held apart, preferably with two strands of strong silk inserted through the anterior parts of the lateral wings of the thyroid. After the latter has been split open, undue violence in holding the halves apart must be strictly avoided. At this stage it will generally be necessary to protect the parts from mucus and saliva by packing the lower part of the pharynx with a large aseptic sponge secured by a string and passed through the laryngeal wound upward. There are two recommendations upon which Semon lays special stress: (1) The surgeon should be provided with a forehead reflector and a good light, and as has already been suggested by the writer for deep operations in the pharynx, he should if possible have at hand a small two- to four-candle power electric lamp, to be used for the purpose of securing the best possible illumination of the interior of the larynx for the detection of every possible bit of diseased tissue. (2) Before he begins the removal of the growth the whole side of the larynx to be operated on should have applied to it a five-per-cent. solution of cocaine, for the pur-

pose of contracting the capillaries on that side and preventing parenchymatous bleeding, which otherwise is sure to interfere with and greatly prolong the removal of the growth proper, while at the same time it may allow suspicious portions to remain behind.

The importance of the two above mentioned measures is strongly insisted upon. The field of operation having been thus prepared, the diseased soft tissues are thoroughly removed to at least half an inch from the periphery of the growth, and if necessary the underlying cartilage is scraped or even removed, the base being firmly scraped with a sharp spoon. The use of the galvano-cautery will seldom be required. Every source of bleeding having been stopped, the whole interior of the wound is dusted with pulverized iodoform, or with iodoform and boric acid in equal parts, and the tampon cannula is immediately removed. The whole of the wound is then covered with cyanide or iodoform gauze.

In cases where the more extensive resection of the thyroid or even extirpation of one-half of the larynx is contemplated, the parts of cartilage to be removed should be freed from their perichondrium and from the surrounding soft parts by means of an elevator. In other respects the operation is the same, only more extensive than mere thyrotomy with removal of soft parts. It is generally not necessary to prophylactically ligate the laryngeal arteries. Where the epiglottis or the aryteno-epiglottidean folds are diseased, the best means of access to them is subhyoidan pharyngotomy.

For after-treatment, both Wagner and Butlin immediately remove the tampon cannula, and from that time use no tracheal cannula whatever; and the wound having been dressed, as above described, the patient is not propped up in bed, but is placed horizontally on the side corresponding to the half of the larynx operated on, with one small pillow under the head. Instead of plugging the wound with gauze as formerly, Mr. Butlin dusts it at least twice daily for the first few days with the antiseptic powder by means of a powder insufflator. The application can be made to the best advantage when the patient is swallowing, as during the act of deglutition the wound in the neck is separated sufficiently to admit the end of the powder-blower, so that the powder may be thrown directly against the raw surface, which should be thoroughly covered by it. The external covering of cyanide or iodoform gauze

should be removed as often as wet by secretion. Although nutrient enemata may be required for the first few days, the experiment may be tried on the day of the operation, or soon thereafter, of allowing the patient to attempt to drink a little water while leaning with the upper part of the body well over to the edge of the bed. In case of any impediment to the closure of the larynx during this act, the water will run directly out of the wound and no harm result. Should the experiment succeed, milk may at once be taken in the same way, and the necessity for rectal feeding be avoided. The external wound gradually closes by granulations, which may have to be stimulated by applications of nitrate of silver.

Turning now to the method of operation classified as No. 2, we find that a distinct advance has been made in the treatment of cases requiring complete extirpation. It was first proposed and practised by Prof. J. Solis-Cohen, of Philadelphia. The patient upon whom he originally employed it in 1892 is still living and well. In this operation, as in several similar to it, the larynx was completely removed and the severed ends of the trachea brought to the external edges of the cervical incision and there retained, communication between the lungs and the pharynx being thus totally and absolutely cut off. The great advantages of this plan over the usual methods are:

1. The danger to life from inspiration pneumonia is greatly lessened, owing to the shutting off of the mouth from the trachea.
2. Swallowing is accomplished with great ease and as freely as under ordinary circumstances.
3. In at least three cases thus operated upon, the power of phonation has been acquired with a voice fully as satisfactory as that produced by any artificial appliance, and without either the inconvenience and discomfort of an artificial larynx or the danger to the adjacent parts from the irritation of its presence. The mechanism by which phonation is accomplished in these extraordinary cases has not been explained. Cohen's patient is able to make his voice distinctly heard from one end to the other of the great hall of the New York Academy of Medicine.
4. The comfort of the patient is greatly increased, and the disfigurement of the other operation and the wearing of the artificial larynx largely done away with. It is entirely probable that under certain conditions this method will prove to be the most satisfactory

for complete laryngectomy of any yet proposed, and it is to be hoped that it may be given a sufficient trial to prove whether or not the cases already reported have been but a result of a happy accident rather than the first illustrations of a definite rule.

As to the third variety of operation, it has often been insisted that in order to insure success malignant disease of the larynx must be treated as early in its history as possible, and at least before involvement of the neighboring glands has taken place. Unfortunately, in the history of the past early operation has not always saved life, but on the other hand several eminently successful cases have been in patients who suffered from a tolerably extensive condition of disease. The management of cases of extensive laryngeal disease, therefore, becomes a matter not only of great importance but of lively interest, especially when it is remembered that perhaps a majority of patients are not seen by the specialist or surgeon until the disease has made considerable progress, and the time most favorable for operation has passed.

Several years ago operations were attempted upon such patients with only here and there an exception to the inevitably and immediately bad result. Subsequently they were generally left to their fate. Of late, under the influence of improved methods and increasing knowledge a hope—a small hope indeed, but worthy of all encouragement—has been aroused by the excellent work of several men. Prominent among these may be mentioned Mr. Watson Cheyne, of King's College Hospital, London, whose efforts in this direction are now attracting much attention, and who in his admirable Lettsomian Lectures (*Lancet*, Feb. 15 and 22, and March 14, 1896) upon "The Objects and Limits of Operations for Cancer," delivered before the Medical Society of London last February, says: "As compared with cancer in the breast, the disease in the throat is in some ways more favorable for cure; in other ways less so. Primary disease of the breast is by far the more favorable of the two, for there it is fully exposed to view, and there is plenty of room for its free removal without endangering important structures. In the mouth and throat, on the other hand, the disease is close to if not involving many important parts, the space in which one has to work is very limited, any considerable margin of healthy tissue cannot be obtained, and the early spread of the cancer to muscle tends to distribute it over considerable area. In the

throat, moreover, the disease is much less favorable for operation, because the septic elements come into play, and thus instead of having to do with an operation in the breast where the mortality is practically *nil*, we have to face very considerable risk of death from septic disease. On the other hand, cancer of the mouth and throat is more favorable as regards the glandular deposits, for in the neck we have an extensive glandular area exposed to view which can be much more thoroughly dealt with than in the case of the breast. It is true that many surgeons look on the glandular trouble as a most serious part of the disease. With this I do not agree. In another respect, cancer in the throat is more favorable than in the breast, namely, that in it metastatic deposits are infrequent."

As to the neighboring lymphatics, Cheyne believes that they should be removed as in cancer of the breast. It is seldom that no enlarged lymphatic glands can be felt in these cases, and usually they are of considerable size. Whether they can be felt or not, the lymphatic area should be cleansed out. Unless the lymphatic enlargement is very extensive or adherent to a variety of structures in the neck, and not merely to the sheaths of the vessels, the operation will be more thoroughly done and the patient will have a better chance of recovery and cure if enlarged glands are already present.

With regard to preliminary tracheotomy, Cheyne, agreeing with many other excellent authorities, does not believe in the insertion of the tube several days prior to the performance of the main operation. Personally, the author does not think his ground upon this question well taken, the objection being that in three or four days after the insertion of the tube there will be a collection of septic matter around it which may get into the trachea after the performance of the main operation. Such an accident could probably be avoided by extending the time between the two operations to ten days or more. It is desirable, however, that this question—namely, when preliminary tracheotomy should be performed—should receive more careful attention than has hitherto been accorded it, as it is without doubt an important factor in the patient's welfare.

These three varieties of operation just described may be said to finally represent the most recent additions to our present resources for the surgical relief of malignant disease of the larynx.

Turning now to the statistics of these and

similar operations performed upon the larynx, we find according to a recent valuable article published by Schmiegelow, of Copenhagen, in *Gougenheim's Annales* for April, 1897, that during the past six years the mortality resulting from extirpation of the larynx has been materially diminished. Thus up to 1880, according to Holmer, the mortality was forty-two per cent. Tauber reports a rate of sixty per cent. following total extirpation of the larynx between 1866 and 1890. Between 1880 and 1888 Schier found that the rate had fallen to thirty-four per cent. Since 1890, however, the reports are much more hopeful, for the same observer finds that the rate during that period has been reduced to twenty-two per cent. Schmiegelow, carrying the reports up to the present time, finds that the percentage of cures since 1890 has been 13.5 per cent., and of immediate mortality 18.7 per cent.

#### *FRACTURE OF THE PATELLA; AN ARTIFICIAL JOINT.*

Dr. A. M. PHELPS recently presented a patient to the Section on Surgery of the New York Academy of Medicine who had sustained a fracture of the patella the first week of last August. He went to St. Vincent's Hospital, and was treated there and discharged. In the second week of October he again fractured the patella, and was sent a week later to the City Hospital. When seen a few days later the limb was enormously swelled and the joint filled with fluid. The appearances were those of purulent effusion. Accordingly on November 7 Dr. Phelps operated on him. The case was presented because of the novel procedure adopted.

On opening the joint it was found that the synovial sac had been totally destroyed, that the cartilages of both the tibia and fibula had been almost entirely destroyed, and that complete excision seemed necessary. After he had succeeded in removing all of the diseased structures, the parts looked so much better that he resorted to a procedure used by him in two or three cases—*i.e.*, the endeavor to restore a normal joint by interposing some of the soft tissues between the ends of the bones, thus preventing the contact of bone with drainage. The patient was lost sight of for a time, but returned recently with the function of the joint preserved.

Dr. Phelps said that the reason he had resorted to this procedure in the present case

was that in operations for angular deformity of the hip he had succeeded in obtaining a very good artificial joint. Last fall he had adopted the same plan instead of amputation in a case of ankylosed finger. Two incisions had been made, one on either side of the finger, the bones divided, and then one portion was made convex and the other concave, so as to simulate the natural surfaces of a joint. The arterial supply having been left intact, he turned in the flaps of cellular tissue between the ends of the bones, and obtained an almost perfect result. He had also used this method in three cases of complete excision of the knee. In one done a year ago a fairly good motion had been secured; in another the result was bony ankylosis; and in a third case motion to an angle of about  $15^{\circ}$ .—*Medical Record*, Feb. 5, 1898.

#### SOME REMARKS ON RECTAL SURGERY.

An interesting paper appears on this subject in *The Lancet* of April 2, 1898, by THOMAS BRYANT. From a careful consideration of these cases of villous rectal growths the following conclusions seem to be reasonable:

That a villous growth of the large intestine is by no means uncommon, and particularly in women.

That when an adult is liable to attacks of abdominal straining, associated with the passage from the bowel of rice-watery mucoid fluid or thick mucus in any quantity, the suspicion of a villous growth should be excited.

When the straining is persistent, or relieved by only brief intervals, and the blood becomes mixed with the mucous discharge, the probabilities of a villous growth are much strengthened.

When prolapse of the bowels becomes constant, and this is attended with the discharge of bloody mucus or blood alone, careful search for a villous growth should be made.

The diagnosis becomes clear only when the growth appears with the prolapsed bowel at the anus or can be detected with the finger. In all cases of intussusception in adults the question of a villous or polypoid growth being the cause should be entertained.

#### A SUGGESTION FOR THE OPEN METHOD OF SUTURE OF OLD FRACTURES OF THE PATELLA.

BARKER contributes a valuable paper on the above subject to *The Lancet* of April 2, 1898.

The knee-joint is now so frequently opened both for injury and disease that all the details of the operation appear to the author to claim a very careful consideration. It is for this reason that he ventures to suggest a method of opening the joint where we propose to wire the patella for old fractures, which appears to him to offer many advantages over other methods commonly in use. Among these may be named the single vertical cut over the front of the patella, the H-shaped incision and the semilunar cut with the curve downwards as perhaps most in vogue. Each of these has often seemed to him to have certain disadvantages, the chief of which are, he thinks, as follows: The single median vertical incision doubtless gives free access to the fragments, but unless it is made very long the latter cannot be manipulated easily through it. It is, therefore, difficult to freshen the old cicatrized faces on both the upper and lower fragments either with saw or chisel. Moreover, in those cases intermediate between recent and very old fractures, where, say, a fortnight or three weeks after the accident we are called on to suture a broken patella, and where there is neither a fresh surface on the fragments nor as yet well organized fibrous tissue, but probably a quantity of half-organized blood and broken-down clot, we want more room for the removal of the latter and the cleansing of the cavity than we can secure through the vertical cut unless it be very long. But if it is extended the scar is in the line of pressure during kneeling and may be tender for an indefinite time. Besides this, the scar is less directly over the wire and may not bear the pressure of the latter without pain or even destruction of the skin. Finally, the cicatrix being in the middle line and probably for a long time at all events adherent to the parts beneath, there is less free play of the skin over the patella than there should be.

The H-shaped incision is not open to the first of these objections. It gives good access to all the parts involved both for wiring and removing blood, fibrous adhesions, etc., but the scar directly across the patella is as objectionable as that in its vertical axis in regard to adherence to the parts beneath and its relation to the wire, though it does not come so much in the way of kneeling. The semilunar cut with the curve across the ligamentum patellæ gives free access to the lower fragment, but not to the upper unless made very freely. The scar, too, lies in a position sure to be pressed upon in kneeling.

These several objections to the hitherto recognized methods of opening the knee-joint have frequently occurred to the author in former years, and have led him, in the last five or six cases in which he was called upon to suture the patella for old fracture, to adopt the practise now to be described, which he suggests is an improvement and which has certainly given him the best results, with much greater ease in operating than that found in the older methods. The aims of the procedure are to gain free access to the parts to be dealt with, with a minimum amount of cutting, and in such a way as to place the scar out of reach of pressure either from kneeling or from the knot of the wire; finally, to provide a good firm pad of tissue over the front of the patella and the uniting wire suture. The steps of the operation are as follows:

In the first place, the lower border of the upper fragment of the patella is made out by palpation as it is drawn down as far as possible by the thumb and fingers of the operator's left hand and steadied in the middle line of the limb. A curved incision is then made with its convexity upwards, beginning just below the level of the broken surface of the lower fragment, thence curving upward and crossing the middle of the upper fragment to end at a point on the opposite side of the joint corresponding with its point of origin. The tip of this flap is now dissected downwards to the broken surface of the upper fragment. The knife is then carried backwards across the face of the latter, clearing from it all fibrous tissue until the joint is open. Then the edge of the knife is turned forwards and placed on the posterior border of the broken surface of the lower fragment of the patella, and the fibrous tissue is similarly cleared from it. In this way all the fibrous matter previously uniting the fractured pieces is left attached to the deep surface of the middle of the flap and the remains of the patella bursa, but without disturbing the latter. The edges of the bone are then freshened with saw or chisel, the joint being protected meanwhile with a small sponge.

The author then passes the silver suture as follows: A stout-handled needle with an eye near the point (the same as that devised for his subcutaneous method of patellar suture) is thrust through the skin immediately under the lower border of the distal fragment. (The skin may be previously punctured with a knife.) It is then thrust through the liga-

mentum patellæ, scraping the border of the fragment in the middle line and passing behind both it and the upper fragment. When the point has reached the upper border of the latter it is made to pierce the attached muscles in the middle line of the fragment. Here it is threaded with stout silver wire and the needle is withdrawn, carrying, of course, the wire behind to the fragments; but when the point of the needle has cleared the lower edge of the lower fragment it is thrust in front of the latter under the flap until it can be unthreaded in the original wound. The wire now includes the broken fragments of the patella, the two free ends crossing in front of the gap between them. Each end of the wire is now threaded through a bar of steel twice, and with these bars in the hands a strong pull can be made upwards with the lower end and downwards with the upper, the latter being in the operator's right hand and nearest to him. By this strain the fractured surfaces are brought close together, aided by the fingers of an assistant. When it is seen that the adjustment is correct a few twists of the wire fasten the fragments securely. Then the wires are cut about half an inch from the twist and the ends are flattened down transversely. All clots should, of course, have been previously removed from the joint with a small sponge. The flap containing the skin, the remains of the bursa patellæ, and the fibrous material from between the fragments, is now laid down over the patella and forms a thick pad covering the wire. It is carefully stitched all round without any drainage, unless there is decided oozing, when each angle may be left without a stitch. But as a rule, if a soft elastic dressing is at once applied and firmly bandaged there is no accumulation of blood in the wound and no need for drains. No splint is required, and the patient is encouraged to gently move the joint in bed from the first; after the removal of the stitches on the tenth day he should be urged to do so. Besides this, massage should be employed daily all round the joint.

In the cases in which the author has employed this method primary union has been invariable, and the result has been more satisfactory than in those operated on by the other methods. In the author's first case—that of a powerful seaman—the strength of the bond of union between the fragment was so great that he returned to his calling and could do anything with the limb; and when about a year later he was put to

a great strain in heavy weather the opposite patella broke, but that with the wire round it still held firm. It might be objected to this method that the wire on the articular aspect of the patella would give trouble, but so far this has not been found to be the case; and, indeed, being perfectly smooth and more or less buried in the bone by the strain put upon it, this need hardly be expected. The saving of time effected by this method of throwing the wire round the fragments rather than by boring them is great. Moreover, to drill the bones exactly in the same places is very difficult, and the danger of splitting them in the process is not imaginary. Both these difficulties are overcome by the above method, which of necessity brings the fragments into the same plane and does not weaken them in the least.

The author would be very much interested, if other surgeons should adopt this method, to hear their opinion in regard to its merits. He has hesitated to dub it "a new method," being rather skeptical about anything nowadays being "new" in surgery. But so far his reading or observation has not brought any similar method to his knowledge. For recent fracture of the patella he sees no reason at present to depart from his method of subcutaneous suture, which he applies at once to every case he meets. This he has done between twenty and thirty times with good results, some of the cases having been already published.

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*NOTES OF A CASE OF PERFORATING  
GASTRIC ULCER; OPERATION  
AND RECOVERY.*

The following case is reported by SHAW in the *British Medical Journal* of March 26, 1898:

Miss H., aged twenty, an assistant in a shop, had been suffering from gastric ulcer since September, 1896, and had at intervals been under medical treatment. On June 24, 1897, she was in the shop as usual, but was in great pain all day. Nevertheless her food on that day included rhubarb, strawberries, tomatoes, bread and butter, with tea. About 9 P.M., some four hours after tea, she suddenly felt acute pain in the stomach, rapidly spreading over the whole abdomen, but managed to walk home, a distance of two or three hundred yards, preferring that method to the jolting of a cab.

The author saw her at 11 P.M., when it was evident that perforation had occurred. The pulse was 120, the temperature 100°; liver

dulness was still present, and there was no distention. The belly was too tender to elicit the presence of fluid. Consent was only obtained for operation in the morning, so she was put under morphine, and dry heat applied. Next day her condition was much more grave, but at 9 A.M., with the help of Dr. Ryley and Mr. Blake, the author operated.

An incision above the umbilicus, in the middle line, was made four inches in extent, and immediately the peritoneum was opened signs of the lesion were evident. Gas and fluid escaped, and large flakes of lymph were found, especially between the stomach and liver. The stomach was somewhat contracted, but not empty, and when drawn into the wound the ulcer was easily detected on the anterior wall, near the pyloric end. The edges were thin, ragged, and undermined, without evident induration; there was no large aperture, and evidently some slight attempt at repair had taken place, although the gentlest handling caused more of the contents of the stomach to escape. The ulcer was closed by a double row of Lembert sutures, and to afford further security a portion of omentum was also fixed over the weak spot. The lymph was removed by careful sponging, an incision made below the umbilicus, and the abdomen washed out with hot boiled water. It was necessary to repeat the flushing several times, as on passing a glass drainage tube into Douglas's pouch vent was afforded to nearly a pint of purulent fluid. The abdomen was then closed, several gauze strips being left in the upper wound, taking care that one passed up under the liver, and others proceeding directly to the line of sutures. Just as the dressing was completed vomiting occurred, so the stomach was immediately thoroughly washed out. The operation lasted an hour and a half, and was well borne, her condition being rather better than at the beginning.

The after-progress was uneventful. For two days she was very ill, but then commenced to improve. After the first day sips of hot water were given, and at the end of forty-eight hours small quantities of champagne and milk alternately were administered. Vomiting occurred once on the third day. During this time drainage, especially from the tube in Douglas's pouch, was very free. The gauze strips were removed on the third day, but the lower wound was drained for a week. At the end of a fortnight both wounds were soundly healed. The temperature at no time rose above 102°

F., and was normal in ten days. Menstruation, which for some months had been in abeyance, occurred on the third day after operation, and has since been regular. The patient was allowed up in the third week, and solid food gradually given. She has now (February 24) been at work for some months, and, excepting when indiscreet in diet, there is practically no pain.

The points of interest in this case seem to the author to be:

1. The ragged, undermined character of the ulcer, without induration or any large perforation.
2. The time after perforation (twelve hours) that the operation was successfully undertaken.
3. The necessity for thorough flushing and drainage, especially through Douglas's pouch.
4. The fact that such an operation could be satisfactorily and successfully performed in a small room of an ordinary lodging-house, at very short notice, and without skilled nursing being obtained either at the time of or subsequent to the operation.

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## Reviews.

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THE GENESIS AND DISSOLUTION OF THE FACULTY OF SPEECH. A Clinical and Psychological Study of Aphasia. By Joseph Collins, M.D.  
New York: Macmillan & Company, 1898.

This octavo volume of nearly 450 pages embodies the monograph of the author to which was awarded the Alvarenga prize of the College of Physicians of Philadelphia in 1897. The author's prefatory note denotes scientific accuracy, even if it does not show great business foresight, for he tells us that since the MS. left his hands in April, 1897, several important contributions have been made to our knowledge of aphasia, but that he has not had the time or opportunity to give them the consideration and discussion that they merit. Naturally this gives one a feeling of disappointment that he is not obtaining the best modern summary of the subject, but a careful examination of his pages shows that while complete studies of these new subjects have not been made, a sufficient number of verbal changes have been introduced by the author as he read the proofs to make the volume as worthy to-day of the prize which was awarded to it a year ago as ever. It is emphatically a creditable production to the author and to the American profession, and is written in an

interesting, consecutive way which leads one from page to page with interest.

The volume consists of twelve chapters and two appendices. The first chapter deals with disorders of intellectual expression; the second with the history of aphasia; and then follows others upon the analysis of the genesis and function of speech, the conception of aphasia, the various forms of aphasia and its diagnosis, causation, morbid anatomy, and treatment, the final chapter dealing with the medico-legal aspects of aphasia. Appendix 1 deals with confusional aphasia and Appendix 2 with articulatory kinesthetic aphasia. A noteworthy part of the book is the copious and apparently accurately prepared foot-notes which indorse many of the statements made in the text. As a complete story of our knowledge of this interesting condition Dr. Collins' book deserves all praise.

ATLAS AND ESSENTIALS OF PATHOLOGICAL ANATOMY. By Dr. O. Bollinger. Volume II: The Urinary Apparatus, Sexual Organs, Nervous System and Bones. With Colored Figures and Plates. Price, \$3.00.  
New York: William Wood & Company, 1898.

The first volume of this Atlas we noticed with much pleasure and praise in the May issue of the GAZETTE. The present Atlas deals with equally interesting topics, is equally well executed, and exceedingly valuable, so that we can cordially commend both the text and the plates.

ACCIDENT AND INJURY: THEIR RELATIONS TO DISEASES OF THE NERVOUS SYSTEM. By Pearce Bailey, A.M., M.D.  
New York: D. Appleton & Company, 1898.

We confess that we picked up this book with considerable curiosity born of the desire to know what field its author intended to cover, and we learn from the preface that his object has been to furnish a systematic description of the nervous affections which result from injury and fright and which are usually classed under the familiar term of the traumatic neuroses. The introduction consists in a discussion of the previous history of the patient and history of the accident, physical evidence of predisposition to nervous diseases, and a consideration of the examination as to actual injury. The rest of the book is divided into four parts. The first deals with organic effects of injury to the nervous system, the second with functional effects, the third with malingering, and the fourth with the treatment of traumatic neuroses, the volume closing with an index of names and an index of subjects. This



method of making an index of names is too infrequently resorted to in this country and is one of the valuable characteristics of foreign medical books. The volume is illustrated by no less than fifty-five black and white illustrations, many of which are taken from other authors, although quite a large number are entirely original. The book is evidently the result of a good deal of personal experience and contact with the class of patients described in its pages. Indeed, a peculiarity of these pages is the frequent insertion of accounts of cases with which the author illustrates his text. Most of the chapters are also finished by a fairly complete bibliography of the subject of which they treat. Only when the author goes far afield for his illustrations, as on page 314, do they prove worthless as additions to the volume. Amongst the various books which come to the editorial office of the *GAZETTE* this is one of those which is put aside for careful study, with the thought that much can be learned from it.

A TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John J. Reese, M.D. Fifth Edition, revised by Henry Leffman, A.M., M.D., Ph.D. Philadelphia: P. Blakiston, Son & Company, 1898.

Old students of the University of Pennsylvania will remember that the author of this book had an elegance of diction and a clearness of expression which surrounded his lectures with a pleasing atmosphere over and above that connected with them by reason of their innate importance. Since Dr. Reese's death the difficult task of editing subsequent editions in such a way as to maintain the usefulness of this book has fallen to the hands of Dr. Leffman, who is well known as the pathological chemist to the Jefferson College Hospital and for the notable chemical analyses which he makes from time to time.

In the present edition we are told that very little has been added to the general principles of the subject, and that the new matter consists largely of reports of peculiar or difficult cases. The book is written chiefly with the idea that it will be of value to the medical man rather than to the lawyer, and it is not a laboratory manual nor a comprehensive work for experts, but a student's text-book and reference work for practitioners. The book is exceedingly well printed, on good paper with large type, heavily leaded, and is a credit to medical jurisprudence on this side of the water. That part of the book devoted to the consideration of poisoning and drugs seems to us of unusual merit.

## Correspondence.

### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P. LOND.

The various medical societies are now shutting up shop for the summer—if we may dignify by that name the hyperborean climate in which we are struggling to exist; nor is there much of note to record from other medical sources. Last month, Mayo Robson read a very valuable and instructive paper before the Leeds and West Riding Medico-Chirurgical Society on a "Method of Exposing and Operating on the Kidney without Division of Muscles, Vessels, or Nerves." We fancy that this method has been practised also in New York. Mayo Robson describes his procedure as follows: Starting from the inner side of the anterior superior spine of the ileum, the incision is carried back in a slanting direction towards the tip of the last rib. The fibers of the external oblique muscle and of its aponeurosis are split and retracted, so as to expose the internal oblique: this muscle is similarly split in a line between the ninth costal cartilage and the posterior superior iliac spine. The fibers of the transversalis can be dealt with along with those of the internal oblique. On retracting these muscles, the transversalis fascia is seen lying at the bottom of the lozenge-shaped aperture; this is incised, and the kidney exposed lying in the perirenal capsule of fat. The fingers will then readily work their way to the kidney itself, which can be grasped and freely manipulated by temporarily removing the retractors. In many cases the kidney can be brought clear out of the wound and explored. Mayo Robson detailed a number of cases in which a calculus was thus extracted and the wound sutured before returning the kidney into the abdomen. He claims many advantages for this method. First and foremost there is no weakening of the abdominal wall because the muscle fibers are not cut; also no vessels are cut, so that healing by first intention is favored. The absence of hemorrhage also means saving of time and diminution of shock from the operation. As no nerves are divided, there is no fear of paralysis of the rectus and other muscles. The operation is performed with the patient lying on his back, which, besides being much more convenient to the surgeon and anesthetist, saves a deal

of disturbance of the patient. The duration of convalescence is materially shortened; the patient can safely be allowed to sit up at the end of the second week, as there is no fear of the wound giving way. Lastly, in view of the frequent difficulty of diagnosis in renal surgery, it is satisfactory to have a method of exploration that involves next to no risk to the patient.

Mr. Mansell Moullin's paper on the "Treatment of Tuberculous Disease of the Bladder" gave rise to an interesting discussion at the Clinical Society. It cannot be said that at present either medicine or surgery is equipped with any adequate means of combating the condition. The various medical remedies are at least innocuous, but the same can hardly be said of the attempts of surgery to treat the disease by local applications. In the first place the bacilli are buried far too deeply to be affected by remedies, which at best can only touch the surface; and in the second place there is the danger of introducing septic organisms into the bladder. Mansell Moullin was in favor of early suprapubic cystotomy with a view to erosion or excision of the disease. One great objection to any operation in our mind lies in the fact that tuberculous cystitis is practically always secondary to tuberculosis elsewhere, usually in the genito-urinary tract, and most often in the epididymis or vesiculæ seminales. Another objection to operative interference is that tuberculosis of the bladder is nearly always latent, and gives no symptoms until the disease is too far advanced for removal; and even in advanced cases the examination of the urine more often than not gives a negative result. Mr. Freyer said that he had opened the bladder six times for tuberculous cystitis and had regretted it in every case but one, as the local mischief seemed to increase after the erosion, and the healing of the suprapubic wound habitually ran an indolent course. Over and above this, suprapubic cystotomy is not a measure to be lightly taken in hand.

The indefatigable editor of the *Practitioner*, Mr. Malcolm Morris, has sought to emulate his Jubilee number of last June by a similar June number this year devoted to the question of Tuberculosis in all its manifold medical aspects. The venture is in every way a great success, and the best thanks of the medical profession and of the community are due to the editor. The articles are contributed by a very select staff of writers, and will certainly be widely studied. In the out-

patient practise of a metropolitan hospital one is constantly reminded of the frequency of the disease, and of one's utter inability to grapple with it. Yet one was hardly prepared to read that at least one-eleventh of the whole population of these islands dies of consumption alone. The post-mortem room, too, reminds one of how large a percentage carry some tubercular scar to their grave, though there may have been no suspicion of tubercular taint in their lifetime. To therapeutists the remarks by Sir Samuel Wilks and Dr. Hector Mackenzie in their respective contributions will be full of interest. Sir Samuel Wilks, from the experience of a lifetime, has come to believe very little in drugs even as adjuvants to Nature's great remedy, fresh air. Dr. Mackenzie says all that there is to be said for the few drugs on which we principally rely—cod-liver oil, creosote, and guaiacol. In skilled hands no doubt all of these are at times effective, but one sometimes doubts whether their stock use in hospital and dispensary practise is not productive of a balance of harm. However, something will have been gained if by their manifest inactivity they serve to clear the field for preventive treatment on the one hand, and for the establishment of suitable sanatoria on the other, within the reach of the destitute many as well as of the well-to-do few.

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#### PARIS LETTER.

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BY A. R. TURNER, M.D. (PARIS).

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The only event of any importance recently has been the Blanchard-Heim scandal. During the lifetime of Dr. Baillon, Professor of Natural History at the Faculty of Medicine of Paris, the assistant professor was Dr. Raphael Blanchard, son of the well known biologist of that name. A more recently appointed assistant professor was Dr. Heim, who likewise held the appointment of superintendent of the Laboratory of Natural History, in which medical students worked. Some time after Dr. Baillon's death, Dr. Blanchard was appointed professor of natural history and relieved Dr. Heim from the post the latter had held, taking charge of the Laboratory himself. He accused Dr. Heim of having misappropriated—in one word, stolen—microscopes and objects of value belonging to the Laboratory. The case was tried before a meeting of the Council of the

University, and though the result did not seem very definite, Dr. Heim was placed on the retired list. Dr. Heim has strongly protested in various ways against what he has termed a persecution due to personal enmity between himself and Dr. Blanchard. As the latter was previously unpopular with the medical students on account of supposed severity in examinations, and from the fact that he delayed for a considerable space of time the publishing of the second part of a work on Natural History, which the purchaser was compelled to pay for when buying the first part, the medical students did not neglect this opportunity of taking part against Dr. Blanchard, and thus relieving their feelings by a little noise. Accordingly when Dr. Blanchard undertook to deliver a course of lectures as professor of natural history, he was greeted with such howls and other marks of disapprobation that he was compelled to stop speaking, nor has it been possible for him to continue, notwithstanding the appeals and threats of the Dean of the Faculty himself. I may add that one is surprised to find in many instances how weak the power of discipline seems to be in the French faculties, above all when compared with what seems the unjust severity displayed on many occasions in the French secondary schools.

At a recent meeting of the Academy of Medicine Professor Dieulafoy described a case of syphilis of the stomach, in which the affection had shown itself with the symptoms of gastric ulcer. A recovery was readily obtained by an antisiphilitic treatment. Professor Dieulafoy stated that such observations were not frequent, and concluded by saying that they would be met with more frequently if thought of. They may assume the various forms of simple hemorrhagic erosions, of gummatous infiltration of the submucous coat, of circumscribed gummata, and of ulcerations and cicatrices of gummatous ulcerations. Dr. Dieulafoy looked upon the gastric juice as playing a certain part in the affection, by its action upon the ulceration, which it tends to irritate and enlarge. As the symptoms were identical with those of simple ulcer of the stomach, it was only by a past history of syphilis and the efficacy of an antisiphilitic treatment that a correct diagnosis could be made.

At the same meeting Professor Huchard, who has written several works on heart disease, and who is likewise known for his chauvinism, communicated a report by Dr. Combemale on the use of thallium acetate in

the night sweats of tuberculous patients. It should be used with caution, as it may cause pains in the legs and complete alopecia.

At the Congress of Internal Medicine, held last April at Montpellier, some remarks were made by Drs. Ducamp, Sabatier and Petit which would tend to show that enteric fever cannot be caused by eating oysters coming from waters infected by the germs of that disease. From bacteriological researches made at Cette, a port on the southern coast of France, it would seem that neither the bacillus coli communis nor the enteric fever microbe were to be found in the oysters of the region, even when placed near the opening of a drain for an entire month, and that even after inoculation with Eberth's microbe, the latter soon disappeared, either from the action of the salt water, or because of the oyster's resistance.

Dr. Netter, assistant professor at the Faculty of Medicine of Paris, has drawn the attention of medical practitioners to the presence in Paris of a slight epidemic of cerebro-spinal meningitis. He reports five cases with autopsy observed at the Trousseau Hospital for Children. Drs. Siredey, Delpuch and Fernet have likewise reported some cases occurring among adults. The differential diagnosis is frequently difficult, and in some cases it may be necessary to tap the lumbar region of the cord and to obtain the meningococcus from the fluid drawn.

In connection with this epidemic in Paris we may mention a similar epidemic observed at Athens by Professor Delyannis. This affection has so far occurred every year in the country around Athens, and during the past year some sixteen cases were observed from November to January. Professor Delyannis' *chef de clinique*, Dr. Assimis, recently gave a description of the disease in the *Presse Médicale*, as well as a report on the microbes discovered. Six cases were fatal, and two autopsies were performed. In most of the cases a frequent and characteristic condition was coma; albuminuria and labial herpes were likewise observed. Though in some cases the malady was not very severe, consciousness persisting throughout, in others the usual severe symptoms were observed.

The results of the two autopsies were as follows: Concurrently with the various signs of congestion found in most cases there was present a seropurulent exudation on the convex surface of the brain below the arachnoid, as well as on the under surface. On the

under surface of the cerebellum pseudo-membranous deposits were present. The coccus found in the pus did *not* resemble that of pneumonia, in that it was not pathogenic for the mouse.

Dr. Marfan, one of the most eminent of the French physicians devoting themselves solely to children's diseases, recommends the following methods of administering some of the drugs used in whooping-cough. Against the fits of coughing belladonna should be given as follows:

Syrup of belladonna (Fr. Ph.), 25 grammes;  
Syrup of tolu (Fr. Ph.), 100 grammes.

For children under two years, one to two teaspoonfuls daily; for children from two to three years of age, four teaspoonfuls daily; and for children from five to six years old, six teaspoonfuls. Give the above doses to begin with, and increase the dose regularly by one-half teaspoonful daily, until the fits of coughing diminish or at least there be signs of intolerance, such as dilatation of the pupils, dryness of the throat, redness of the cheeks.

Dr. Marfan considers the above drug to be most useful in some cases, but as necessitating care in its use. He considers antipyrin to be more easily employed in children, and recommends the following formula:

Antipyrin, 3 grammes;  
Syrup of orange flowers, 20 grammes;  
Distilled water, 100 grammes.

One teaspoonful of the above mixture contains ten centigrammes of antipyrin. Under two years twenty centigrammes may be given; from two to five years, fifty centigrammes; and from six to ten years, one gramme. The maximum doses should be respectively *one, two and three* grammes. Each daily dose should be given in three parts, at regular intervals.

Antipyrin should *not* be used when there is danger of catarrhal pneumonia, on account of its depressing effect.

Bromoform would seem to be a good preparation, and may be used in the following manner:

Bromoform, 7 grammes;  
Sweet almond oil, 30 grammes;  
Gum acacia, 30 grammes;  
Syrup of orange flowers, 40 grammes;  
Cherry-laurel water (Fr. Ph.), 10 grammes;  
Distilled water, q. s. to 300 Cc.

The initial doses are as follows: Children under six months, two to three drops; children from six months to a year, three to four drops; children two years old, eight drops; children three years old, twelve drops; six-

teen drops at four, and twenty to thirty drops after five years. A daily increase should be made of from two to three drops, and this is absolutely necessary in order to obtain favorable results.

Bronchial infection should be prevented by antiseptic precautions, such as washing out of the mouth, antiseptics of the nose, treatment of all lip sores and forms of rhinitis.

#### BERLIN LETTER.

BY JAMES J. WALSH, PH.D., M.D.

A noteworthy contribution to the literature of appendicitis is the article on the subject in the third part of Nothnagel's Diseases of the Intestine and Peritoneum, which has just appeared as a volume of the system of Special Pathology and Therapy, of which the great Vienna clinician is editor. For views as to appendicitis are quite as widely divergent over here in Europe—let us rather say more so—as in America. Its treatment is a point on which surgeons and physicians agree to differ even more than across the ocean.

On my way up from the German Congress for Internal Medicine at Wiesbaden, I stopped off at Jena, and heard a medical clinic and a surgical clinic on appendicitis. Professor Stintzing, the director of the medical clinic, is the editor, with Professor Penzoldt of Erlangen, of a System of Therapeutics that, despite its four-volume size, has reached a second edition in two years. He is known as a most conservative but a most successful therapist. He was just passing around the stool of a case of appendicitis that had been under treatment for twelve days in the wards under opiates. It was the first stool the patient had had since his admission, and Professor Stintzing said that he did not feel the least alarm if patients on the strictly limited diet required in these cases should not have a stool for fourteen or fifteen days. There was very little accumulation of fecal matter, and the thing above all to be avoided was the disturbance of Nature's protective adhesions by any increase of peristalsis. He scouted the idea that a purgative or salines should ever be prescribed in appendiceal cases. He considered it an utter misapprehension of the indications to employ them, and the statistics of the comparative mortality and morbidity of cases in which constipation or diarrhea had been present he could only stigmatize as one of those misapplied coinci-

dences of figures which have always worked so much harm in medicine, especially in therapeutics. As to the claim that appendicitis was a surgical disease, he considered it a specialist's pretension, and as such always sure to be exaggerated, especially when the significance of an ailment is first brought into prominence. The great majority of the cases, he thinks, run a benignant course and get well under purely medical treatment.

Across the hospital yard Professor Riedel, the director of the surgical clinic, could only say that all appendicitis, and all acute affections of the right iliac fossa, are surgical cases. The symptoms of acute inflammation to his mind always pointed to the existence of pus, and where pus was present the medical man must give place to the surgeon. He showed three cases of recurring appendicitis in which so-called medical cures had been effective in previous attacks; in all three operation disclosed the presence of walled-off abscesses, in one in fact of multiple foci of purulent inflammation, micro-organisms having found their way along the lymph paths and blood-vessels of the mesentery to infect distant parts of the peritoneum. There was a wonderfully homelike feeling created by this difference of opinion. It would be strikingly familiar, I think, to any American fresh from the benches of the medical societies at home.

Nothnagel's views, then, in the work which is supposed to sum up European medical opinion at the end of the century, are of special interest. His conclusions are practically a medical capitulation all along the line. For the terms typhlitis, paratyphlitis, etc., he finds scarcely any *raison d'être*. Inflammatory affections of the right iliac fossa are practically always due primarily to the appendix. His fine etymological sense (any one who has heard his clinics could scarcely help being struck by his easy, wonderfully simple and sympathetic style) will not permit him to accept the word appendicitis. To replace it he suggests "skolikoiditis." He considers that the primary stercoral typhlitis of the older authors is extremely exceptional. The acute symptoms of skolikoiditis he thinks with Sahle point nearly always to inflammation so acute that it probably is or will be purulent. A surgical consultant is practically always to be called. Eighty per cent. of the cases will get better on medical treatment, but since the etiological importance of a collection of feces in the cæcum as the origin of the disease is no

longer to be admitted, not purgatives but opiates must be given. He prefers, and this is a special remark made by many prominent clinicians over here when they suggest opium, the extract of the drug to any of the alkaloids, and especially to morphine. Nothnagel thinks that there need be no uneasiness if the patient should not have a stool for six to eight days.

Two interesting questions are touched upon—the family tendency to appendicitis, which has now been noted so often that it is generally admitted, and the question of the possibility of epidemics of appendicitis, two of which have so far been reported. The article is a masterly study of the interesting question, on which American workers have contributed more than any others, to make the present position of general medical opinion.

Professor Heubner gave the other day the practical results of some experiments on the therapeutic influence of phosphorus in rickets, which have been conducted in his clinic. The division of opinion in various pediatric clinics of Europe as to the value of phosphorus in the disease is most striking. The last two prominent writers on the subject—Comby and Hagenbach—hold exactly opposite views. The one finds it useless, the other a specific. Phosphorus fed to animals produces an increased bone formation, and if enough lime salts are not furnished in the food, then what would be new formed bone is only cartilaginous matter. Existent bone becomes denser. Rachitis does not, however, merely produce defective bone formation; it, like phosphorus itself, sometimes produces an excess of bone, or in defect of lime salts an excess of cartilage. There are, however, a series of rachitic bone lesions that are the expression of defective bone-making and are represented by an osteoporosis of the skeleton. These forms are much more common in certain parts of the country than in others. For instance, the descriptions of pathologists in Vienna and in certain parts of Southern Germany show that osteoporosis is a very common lesion. In these parts naturally phosphorus enjoys the reputation of a specific. Except in these cases, however, it is only as a tonic alterative that phosphorus does any good, and its results are only satisfactory in a small proportion of the cases. It seems possible, however, by knowing the ordinary bone lesions of rickets in a district, to be able to tell whether phosphorus will be of benefit or not.

A very interesting attempted application of phagocytosis to surgery is the effort to "fight pus with pus," that is being tried in a number of places in Germany now. Non-micro-organismal pus, that produced by the chemotactic influence of turpentine for instance, is called into action around a focus of chronic inflammation, with the result, so observers claim, that the active phagocytes put an end to the chronic inflammatory process, by consumption of the bacteria and their products. It is even claimed that the action of many so-called antiseptics lies not in their bactericidal qualities, but in their irritation, calling to the spot white blood-corpuscles that act as phagocytes.

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ROME LETTER.

BY DILLON CARBERRY, M.D.

Within the past month the security of foreign medical men practising in Italy has been assured. A letter to Lord Salisbury from Sir Clare Ford, the British ambassador here, indicates that the agitation is at an end, and that no steps will be taken by the Italian Government to alter the existing laws in regard to foreign practitioners. This conclusion to what seemed, at one time, a serious crusade against the foreigners, cannot but be gratifying to them, while it is not considered unjust by the more liberal of our Italian *confrères*.

Dr. Pietro Pagello, who died lately in his ninety-first year at Belluno, was a curious example of the capricious dealings of fame. It may be remembered that it was he who treated Alfred de Musset at Venice for what the poet in his diary calls cerebral fever; for the skill of the Doctor in curing this anomalous ailment the recovery of his patient must vouch; but it was his romantic liaison with Georges Sand (which led to her rupture with de Musset) that placed him in the niche of notoriety.

Another recent death, that of the Honorable Cavallotti, though no less suggestive of romance, from its connection with that curious medieval survival the duel, has points of interest for the surgeon or the medical jurist. The conditions of the encounter, based on medical knowledge, were unusually severe; the wrist and forearm of each combatant being protected by tough leather gauntlets, so as to prevent the possibility of a mere wounded radial or severed tendons from causing a cessation of the fight. The swords

are always sterilized by the surgeons in charge, and should one of the duelists drop his point so as to touch the ground the fight is stopped until the point has been freshly antisepticized. The wound that killed Cavallotti was punctured and incised, as the swords were double-edged and pointed, making a most severe wound. The sword point entered the mouth through a gap left by the absence of three teeth; it sliced the tongue, divided the epiglottis, and opened the internal carotid. In an incredibly short time Montenovesi, the surgeon, succeeded in tying the left common carotid; but Cavallotti died within five minutes of the giving of the blow, curiously enough from asphyxia, due partly to spasm of the glottis, partly to escape of blood into the air-passages.

The Italian law punishes the duelist in proportion to the extent of the wounds inflicted; thus a wound that takes ten days to heal will condemn the giver to three months' imprisonment, while six months is the lot of one who inflicts a wound that refuses to heal in less than twenty days. Homicide is comparatively cheap; it costs five years.

The new antipneumonic serum of Pane comes in for a good deal of attention in these days, as very encouraging results are reported from Naples, where its use is warmly advocated by De Renzi. The value of the serum is undergoing active investigation in the Roman hospitals, and many authorities speak favorably of its action. In the medical section of the Policlinico Professor De Renzi, who has been the first to use the new serum, publishes a series of observations. The antipneumonic serum, he tells us, is prepared by immunizing asses and cows with very large doses of a most virulent culture of the pneumococcus. The injections of the serum are always followed by a marked fall in the temperature, pulse, and respirations. Although the general condition of the patient is much improved, the local lesions do not heal in any shorter period. Out of thirty-three patients treated, three only died; whilst the mortality amongst other patients reached twenty-four per cent. It is fair to note that only grave cases were selected for treatment where clinical instinct suggested an unfavorable prognosis.

De Renzi does not consider the action of the toxins to be very evident in the clinical picture of pneumonia, although he cannot deny their existence; he is persuaded that the toxic effects are not due to the direct

action of the virus. His opinions are founded on an observation of splenic tumors and hepatic swelling as not infrequent though not constant phenomena in the disease, and on the fact that the diplococcus in pure culture does not produce a very appreciable quantity of toxins. A careful observation of the blood-pressure in many cases has led him to believe that the process in pneumonia is sthenic before and asthenic after the occurrence of the crisis. He concludes by prognosticating that the serum must prove useful in treating the various manifestations of the action of the diplococcus, such as meningitis, pleuritis, and suppurative arthritis; but he thinks unfavorably of preventive inoculations owing to the short duration of the immunity conferred.

At a late meeting of the Associazione dei Medici e Naturalisti in Naples, Professor Pane added something to our knowledge of the morphology of Fraenkl's coccus. He has observed that the capsule of the coccus becomes more apparent as the disease advances; it is not seen in the cocci found in the spleen of infected animals killed during the first two days; it is well marked where the germs have been cultivated in the anti-pneumonic serum. For these reasons he believes that the appearance of the capsule represents a phenomenon of degeneration.

The whole question of the Pane-De Renzi serum was discussed at the last meeting of the Società Lancisiana degli Ospedali di Roma. Dr. Stefanucci-Ala's opinion was unfavorable; he doubted whether it was possible to provide a curative serum for pneumonia. Several distinct germs, that of influenza, to wit, the pneumococcus, the pneumo-bacillus, as well as other germs, were capable of producing pneumonia. Could the serum be active against each and every one of these? The non-acquirement of immunity by a previous attack militated against the presumed value of the serum. His observations, limited to three cases, of which one died and the others recovered, were not satisfactory, as the action of the serum was not marked. To this Stagnitta replied that while he agreed with Stefanucci, that many dissimilar germs, such as the pneumo-bacillus of Fraenkl and Frobenius, the bacillus of Eberth, that of Pfeiffer, and even a mold such as the aspergillus, were all capable of causing a croupous infection of the lung, with all the characteristics of genuine pneumonia, still at least ninety per cent. of the cases of croupous pneumonia proper must be at-

tributed to the action of the diplococcus lanceolatus of Fraenkl; it was to these cases alone that the new serum was applicable. As regards immunity he, agreeing with Silva and the Klemperers, was assured that what was expected from a serum was not so much immunizing as antitoxic properties; these the serum undoubtedly had. Dr. Gamba recorded four successful cases, and Concetti two unsuccessful. Several others spoke, the sympathy of the assembly being in favor of the use of the new serum.

In the current number of the *Supplemento al Policlinico* Sanarelli, the discoverer of the bacterium icteroides, publishes a review of his first experiments with his curative serum for yellow fever. The preparation of the serum differs somewhat from that of the more common antitoxins in this particular, that it occupies a much longer time on account of the exceptional difficulty which animals have in tolerating large doses of the virus; with a continuous intensive treatment in the horse it takes from twelve to fourteen months to procure a serum of sufficient strength. So far Sanarelli has been unable to discover any antitoxin in the blood of the immunized animals; his serum is a germicide, not an antitoxin; to be of service it must be used promptly. Sanarelli disagrees with Sternberg in the theory that the intestinal tract is the seat of the bacteria, and concludes that anuria, or diminished renal secretion, with albuminuria is much more typical of fatal cases than hemorrhages or black vomit. Finally, any curative efforts are in vain when symptoms of uremia are present.

The first experiments on eight patients proved these contentions; four, who were already anuric, died, the others recovered. The next series of observations was compiled at San Carlos do Pinhal, in Brazil, where a violent epidemic was raging. The serum used was that of a horse, and its intrinsic harmlessness was demonstrated in the person of the discoverer, who injected large doses, as a preventive, into his own body without suffering any unpleasant consequences. Of eight cases treated by subcutaneous small doses repeated, two died. It was then decided to practise intravenous injection of large doses, the "intensive" method; of fourteen patients so treated, four died. In all, out of twenty-two cases six only were lost.

Sanarelli is unwilling to deduce a statistic from these figures, but he draws attention to

the fact that the prevailing epidemic was of the severest type, with a mortality of over eighty per cent.; that all the cases treated were of a typical and severe nature; and that the presence of the bacillus icteroides was often demonstrated in the blood of patients during the course of the experiments. The preventive value of the serum was demonstrated in the case of the prison at San Carlos, where four cases of yellow fever had followed in rapid succession. The hygienic surroundings were *nil*, the inmates occupying one common chamber. No further cases were reported after the vaccination, although the fever continued to devastate the surrounding district.

A great deal has been already written about renal lesions in malarial infection, yet a recent memoir published in the medical section of the Policlinico by Rem-Pecchi, professor of medical pathology in the University of Rome, brings a certain amount of new material into the literature of this subject. Taking his position at the point indicated by Thayer and Hewetson (*Johns Hopkins Hosp. Rep.*, vol. v, 1895), he continues his observations—extended over many years—and deduces the following conclusions: (1) Malarial infection is capable of producing true renal lesions, but the number of such cases is small; in Rome, the complication is more prevalent amongst the young, and during the autumn. (2) All forms of acute and chronic renal disease, save the contracted kidney, may be produced by malarial poisoning; the attack is light as a rule, and of the catarrhal, desquamative or tubular type; it is readily cured, but if neglected may easily decline into a chronic form. (3) The renal lesion may appear during an attack or after; the post-malarial onset has a special significance to the physician, who must bear in mind the possibility of the occurrence of nephritis after the cessation of the fever. (4) The causation of these lesions is to be attributed to the irritation consequent upon the elimination of toxic elements and not to the plasmodium which, according to Baccelli, is pyrogenetic, not pyogenic.

The treatment advised by Rem-Pecchi is based on the free use of quinine, where the fever is active. He recommends a combination called Baccelli's mixture; it consists of sulphate of quinine, tartrate of iron and potash, arsenous acid, and water. Hemoglobinuria, he admits, may be one of the concomitants of cinchonism—never hematuria nor albuminuria. Bleeding from the

dorsal veins of the foot, as advocated by Baccelli, is very useful in the hemorrhagic and other acute forms.

Professor Rem-Pecchi quotes the history of the subject *in extenso* and gives the notes of over thirty cases.

The use of phenic acid in cases of tetanus, devised by Baccelli some years ago, has many upholders here. Dr. Ascoli, at a late meeting of the Royal Academy of Medicine, made an astonishing comparison between the relative values of the serum of Behring and Tizzoni, and the cure by phenic acid. The cases so far reported give the following results:

Treatment by Tizzoni's serum, died, 8 in 40.

Treatment by No. 1 Behring serum, died, 4 in 40.

Treatment by No. 2 Behring serum, died, 2 in 9.

Treatment by phenic acid, died, 1 in 30.

Leaving a considerable balance in favor of the carbolic treatment. There is a great tolerance for the drug in tetanus, and the use of large doses is indicated. For injection subcutaneously a three-per-cent. solution is used; the dose varies from one-half to ten grains; the maximum dose for the twenty-four hours seems to be forty-five grains. Local baths may also be used with advantage.

It is a pleasure to learn that during the terrible days of the Milan riots the medical profession was not found wanting at its post; and great praise is given by all to the heroism of the civil and military surgeons, who took an active part in tending the dying and wounded. The Ospedale Maggiore, where the greatest number of the wounded lay, bore the brunt of the work. In spite of this Professor Porro, of that hospital, was mobbed at the gates; but he turned upon the crowd, faced the shouting rabble, and compelled them to give way by the mere influence of his personal courage and determination. The hospital was guarded by the military subsequently. No official report has appeared as to the number of dead and wounded; the former may be over 200 and the latter possibly near 1000.

One of the most ghastly scenes in the riots occurred near Bari. Here Dr. Brandi, the poor-law officer of the district, was assaulted by the mob, chased into his house, and subsequently torn limb from limb (*sic*) by the villains, in the presence of his wife, who was dying from heart disease. His house was then burnt to the ground, the poor lady being carried into a cellar adjacent, where she shortly afterwards expired.



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## Original Communications.

### THE TREATMENT OF CHRONIC POSTERIOR URETHRITIS CAUSING INTERMITTENT GLEET.

BY H. M. CHRISTIAN, M.D.,

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By the term intermittent gleet is meant a urethral discharge, recurring at repeated intervals, very often without apparent exciting cause. The condition is a very common and troublesome sequel of acute gonorrhea, being

frequently found to occur in cases where the acute disease seems to have been cured. It depends primarily for its cause upon the presence in the urethra of one or more sharply defined areas of "intense congestion, excoriation, granulations, and epithelial thickenings" (White and Martin).

In the treatment of this most troublesome affection the first essential requisite is that the physician should be able to definitely determine whether the seat of the disease is located in the anterior or posterior urethra.

The writer recalls the fact that up to a comparatively recent period all cases of gleet were considered to be dependent upon lesions in the anterior urethra, generally stric-

tures, so called, of large caliber, no regard whatever being paid to the posterior urethra. At the present day, however, genito-urinary surgeons are convinced of the fact that fully one-half, if not more, of all cases of intermittent gleet discharge depend upon the presence of chronic granular patches located in the deep urethra. In thirty-one cases of chronic urethral discharge, Finger found the posterior urethra affected in fourteen. White and Martin state that the seat of predilection for chronic urethritis is the posterior urethra. My own experience would go to confirm this last statement, as I found in sixty cases of gleet treated during the past year that the posterior urethra was the part affected in forty-four.

In determining whether a given case of gleet depends upon the presence of a chronic posterior urethritis, we should be guided by two things: first, the clinical history of the case, and second, the examination of the urine. As regards the clinical history, repeated recurrence of urethral discharge, not due to fresh infection, associated with increased frequency of urination, is presumptive evidence of trouble in the deep urethra. Turbid urine containing clap shreds passed by the patient after irrigation of the anterior urethra is of course absolute evidence of chronic posterior urethritis.

The successful treatment of this affection proves, too often indeed, to be a most troublesome problem, and extremely trying to the patience both of the surgeon in charge and the unfortunate victim of the disease. At the outset it must be borne in mind that there is no routine line of treatment for the cure of all cases. He who relies for success in the treatment of this disease upon the passage of a sound alone, or upon the marvelous efficacy of some potent clap injection, will surely fail. In few conditions is it more necessary for the physician to be a man of infinite resources. The treatment proper for chronic posterior urethritis should be both general and local. As regards general treatment, several important points must be looked after. Very many of these patients are rheumatic or lithemic. These conditions, if found, must of course be treated by the internal administration of suitable remedies and by regulation of the diet. Again, a large number of these patients are neurotic, pass urine filled with oxalates accompanied with excessive precipitation of phosphates, improperly called phosphaturia. For this condition I have found the following prescription very valuable:

- ℞ Strychninæ sulph., gr. ss;  
Acid. phosphor. dil., f ʒ j;  
Ext. erythroxylon cocæ fl., q. s. f ʒ iij.  
M. Sig.: ʒ j t. i. d. after meals.

If, as so often occurs, these patients show signs of sexual neurasthenia, a general line of treatment for the purpose of toning up the nervous system is indicated. This should include outdoor exercise and gymnastics, and the internal administration of cod-liver oil, arsenic, and iron. The writer would call particular attention to the use of the freshly prepared undiluted nitro-muriatic acid, which he has so often found of great service. The formula used constantly by him is as follows:

- ℞ Acid nitro-muriatic (U. S. P.), f ʒ iss;  
Tr. nucis vomic., f ʒ ss;  
Elix. cinchonæ, q. s. f ʒ viij.  
M. Sig.: ʒ ss in water after meals.

The local treatment is of course the more important element in the management of cases of chronic posterior urethritis. It embraces irrigation of the deep urethra; the passage of sounds; deep instillations; massage of prostate gland; the use of the psychrophore; and lastly, the application of medicated ointments to the mucous membrane of the deep urethra. I have placed these various modes of treatment in the order in which they will prove of the greatest utility to the general practitioner.

*Total Irrigation of the Urethra.*—This is the first line of treatment to be carried out in all cases, its employment being imperatively demanded to insure success. The use of ordinary hand injections for the cure of recurrent gleet dependent upon chronic posterior urethritis is absolutely valueless, for the simple reason that the seat of trouble, being in the deep urethra, and consequently behind the "cut-off" muscle, cannot be reached by such methods. In total irrigation of the urethra, however, this resistance of the compressor urethræ muscle is overcome; the medicated solution being thrown into the bladder acts directly upon the deep urethra as it passes in, and again upon being voided by the patient. Two methods of using total irrigation can be employed:

First, meatus irrigation. Here we depend upon overcoming the resistance of the cut-off muscle, by hydrostatic pressure. For this purpose is needed a fountain syringe fitted with a glass or hard-rubber conical nozzle such as is generally found attached to the nasal douche. To irrigate the deep urethra with this simple apparatus requires that the reservoir containing the irrigating fluid should

be suspended at a height of seven feet from the floor. Next the patient should assume a semi-recumbent position in a chair, the legs fully extended and widely separated (a steamer chair is admirably adapted for this purpose); the nozzle of the syringe is held firmly in the meatus and the fluid is allowed to *slowly* enter and distend the anterior urethra. In most cases the time necessary to overcome the resistance of the "cut-off" muscle is from one-half a minute to two minutes. The bladder should be filled at each irrigation, the patient passing the solution after treatment.

This is the method of applying total irrigation to the urethra that is most largely used by genito-urinary surgeons at the present day. It is a form of treatment that is by no means easy to carry out always. As a matter of fact, in some few cases it is next to impossible to overcome the resistance offered by the compressor urethræ muscle. Where such is the case, or where meatus irrigation is a very painful procedure, it is perfectly proper to use the soft catheter, carrying it down into the posterior urethra and allowing the irrigating fluid to pass through the catheter into the deep urethra and bladder.

In the writer's experience the drugs that have been most valuable in irrigation for chronic posterior urethritis are nitrate of silver and sulphate of copper; of these the silver salt is by far the more useful.

In every case of recurrent gleet where the two-glass test shows the seat of disease to be located in the deep urethra, the first routine treatment to be employed should be irrigation of the posterior urethra with a solution of nitrate of silver, beginning with the strength of 1:6000. Where it is practicable this treatment should be carried out daily for ten days, increasing the strength of the solution every three or four days—*i.e.*, first three days, 1:6000; then for three days, 1:4000; finally, 1:2000. Where it is impossible in private practise to use daily irrigations—and this will generally be found to be the case—treatment should be carried out twice a week, increasing the strength of the solution every week.

The writer has dwelt at some length upon this subject of total irrigation in the treatment of chronic inflammation of the posterior urethra, for the reason that he is thoroughly convinced, as a result of rather extensive experience, that it is the most important feature in the successful management of these most troublesome cases. The simplicity of the technique, the ease with which it can

be carried out, and above all the fact that as a routine treatment it is applicable to all cases and can never do harm—which is more than can be said for some modes of treatment—all contribute in the writer's mind to make irrigation of the first importance in the handling of these cases.

Second only to irrigation is the proper use of the steel sound. This instrument should never be used where there is a distinctly purulent discharge with cloudy urine. Finger lays great stress upon this point, which the writer has also found to be a most important one. Where irrigation has been practised for a week or ten days, and there is simply a scanty mucoid discharge at the meatus, the urine clear but filled with clap shreds, the sound passed every four days will prove to be a most valuable adjunct in the treatment.

Under these circumstances our custom is to begin with a 24 F. sound, following its withdrawal by total irrigation of nitrate of silver 1:4000. At subsequent visits the size of the sound is increased up to 28 or 30 F., each passage of the sound being followed by a total irrigation of silver, increasing gradually in strength from 1:4000 to 1:2000.

By this combined method of treatment a cure can be confidently expected in the majority of cases in from eight to twelve weeks. There will of course arise plenty of instances where its employment does not seem to be followed by any apparent results for the better. Here the use of the deep urethral instillator will often prove of great value. After passage of the sound, the deep urethral syringe holding about ten drops of silver or copper solution is introduced into the urethra and the solution is deposited in the prostatic portion, behind the compressor muscle. The strength of the first solution so employed should be one-per-cent. At the end of four or five weeks' treatment, as high as five-, eight- or ten-per-cent. solutions may be used.

Deep urethral injections must be at once discontinued if they are followed by violent reaction—*i.e.*, increased urethral discharge and continued vesical tenesmus.

In undertaking the treatment of chronic posterior urethritis, rectal examination should be a matter of routine practise in all cases. In many instances such examination will demonstrate that in addition to the lesions in the posterior urethra there are present also catarrhal prostatitis and chronic seminal vesiculitis. The prostate will be found to be larger than normal, soft and tender; moreover, the finger carried above the prostate

will often detect on either side an oblong, thickened, tender mass, which constitutes an inflamed seminal vesicle. Where these conditions are present massage of the prostate and seminal vesicles every five or six days forms an essential part of the treatment. Indeed, very many cases can never be cured permanently without this maneuver being practised. Massage should always be followed by total irrigation of silver.

The psychrophore, an instrument which has been advised in the treatment of chronic posterior urethritis, seems to the writer to be of little value in cases where persistent gleet discharge constitutes the prominent symptom. It is chiefly serviceable in those conditions of atonic impotence and sexual neurasthenia so often resulting from chronic inflammation in the deep urethra.

As regards the use of the urethroscope, medicated bougies and the introduction of powders and ointments into the deep urethra for the cure of this affection, but little of any value can be said. While all these methods have a distinct place in the treatment of chronic anterior urethritis, they can hardly be said to have been of any great service when applied behind the compressor urethræ muscle. As far as the urethroscope is concerned, it should be kept out of the deep urethra altogether. I cannot help but feel that there ought to be a future for the soluble medicated bougie in the treatment of these cases, but so far my experience with them has been very limited and very unsatisfactory.

In concluding, the following line of local treatment is strongly advised as being applicable in all cases of chronic posterior urethritis: For ten days or two weeks total irrigation of the urethra with silver solutions—1:6000 during first week, 1:4000 in the second week. If practicable, these irrigations should be employed daily; where this cannot be accomplished, one treatment every four days will answer. In the third week pass a sound every four days, and follow by an irrigation of silver 1:2000. Continue the regular passage of sounds, increasing in size up to 28 or 30 F., every four days, for a period of from three to four weeks.

Irrigate the urethra after each introduction of the sound. Where prostate is involved, supplement the above treatment by stripping of the gland per rectum once a week. This is most essential to success.

Under such a course of treatment one can confidently expect a cure in almost all cases in from six to ten weeks. One important

point should always be borne in mind, viz., where the symptoms are increased and the local condition made worse by treatment it must be at once suspended for a time. Particular attention is called to this matter by White and Martin in *Genito-Urinary and Venereal Diseases*, page 141, where it is stated that "if after two months' treatment there is no marked improvement, and particularly if coincidently with active treatment the patient becomes worse, all applications and medication directed to the urethra should cease."

#### EXCISION OF THE THYROID GLAND.

BY THOMAS C. DETWILER, M.D.,  
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The thyroid belongs to the class of ductless glands. In health it weighs from one to two ounces and is of a brownish-red color. It is a bilateral gland connected in the median line of the neck by a narrow isthmus. In front it is covered by skin, the platysma and superficial fascia, the sternohyoid, sternothyroid and omohyoid muscles. Its lateral surfaces are in contact with the carotid artery and jugular vein on the outside, and inside with the trachea, larynx, and esophagus. Its blood-supply is very large. The superior thyroid arises from the common carotid, and the inferior thyroid arises from the innominate. Sometimes there is a median branch. The veins are very large, thin-walled, and form a plexus on the surface of the gland, and they form very many anastomoses.

As the scope of this article is too limited to refer to the various pathological conditions of the gland, I will immediately proceed to the indications for operation as given by Jacobson. Briefly epitomized they are as follows:

1. The failure of previous treatment.
  2. Dyspnea sufficiently constant to prevent the patient from following an active employment, or inability to bend the neck in sedentary employment.
  3. The existence of tracheal stridor or extension of the bronchocele downward.
  4. Attacks of sudden suffocation—dyspnea.
  5. Difficulty of deglutition.
  6. Steady or rapid enlargement with or without dyspnea, with threatened growth downwards and a tendency to become sub-sternal.
  7. To improve the personal appearance.
- It is needless, after what has been said

about the anatomical position of this gland, situated in the most dangerous part of the neck, surrounded by the most vital tissues, to point out that the operation should never be undertaken lightly, and when undertaken at all, only by a surgeon who has the utmost confidence in himself and is fully prepared to meet all emergencies. MacCormac once said the most difficult operation he had ever undertaken was the removal of a large bronchocele. The operation lasted over two hours and over one hundred ligatures were used. Still I feel assured that in the future many more thyroids will be removed than in the past, and the common sight of persons disfigured by an ungainly goitre will become exceedingly rare. Why wait for a growth to become a great disfigurement and a menace to life, when in proper hands an early operation will be practically without danger? Not wishing to seem radical, still I think all goitres in young persons, after proper treatment for six months or a year, that do not show a mark of decrease, or if there is any tendency to growth, should be removed.

The contraindications are:

1. High bronchoceles, especially if they are broadly fixed.
2. Calcified bronchoceles.
3. Those occurring in persons with ill-formed limbs.
4. Those that are substernal.
5. Those occurring in persons over fifty years of age.
6. Those occurring in persons with very feeble hearts—a very frequent occurrence in those suffering with bronchocele.

The dangers of the operation are:

1. Hemorrhage, which though great can usually be overcome by care. The danger from hemorrhage is not from the arteries but from the veins, which are unusually large and thin-walled, and in severe cases form a perfect network over the surface of the gland.

2. Injury to the recurrent laryngeal nerve, an accident that has happened a number of times. This danger gives every operator a great deal of anxiety until the fact has been ascertained that it has escaped injury.

3. Septic cellulitis. This most grave and fatal complication can now be almost entirely eliminated by careful attention to every aseptic detail.

4. Myxedema. This complication can be avoided by leaving a part of the gland and isthmus behind, as we are able to do in almost all cases; but if such should be impossible, I can see no reason why we should not

have as perfect control over this disease artificially induced as we have by the use of thyroid extract in idiopathic cases in general practise.

*The Operation.*—Place the patient on his back with a sand-bag or hard support under his neck, and the shoulders well raised. The chin should be kept in a line with the sternal notch. The anesthetist stands at the head of the table. Chloroform should be used, as ether causes too much engorgement of the veins of the head and neck.

A free incision should be made—an incision that will freely uncover the lobe. Kocher makes a Y-shaped incision, but generally this will not be necessary. A straight one or one slightly curved will usually answer, and the resulting scar will be almost hidden by the fold of the sternomastoid—a matter of no small moment with women patients. The skin, platysma and fascia are now divided. The veins that are met with are secured between double ligatures and cut; the muscles on the surface of the gland are ligated and divided. They are often very thin from being stretched over the enlarged lobe. If necessary the sternomastoid may be cut, but it can generally be separated and pressed to one side with the carotid artery and the jugular vein. In dissecting out the lobe use an Allis blunt dissector or a periosteal elevator. In employing these instruments absolutely no violence must be used, but the utmost gentleness. A blunt-pointed pair of scissors curved on the flat will be found very useful. Use the knife as sparingly as possible; the handle will be much more useful than the blade. Cut no tissue until it has been thoroughly examined—a vein on the stretch can easily be overlooked and cut. The amount of hemorrhage from even a small vein is truly surprising. It is a good plan to frequently raise the head so that the veins can fill and become easily visible. The veins form a plexus over the lobe and each must be secured between double ligatures and cut. Hemostats cannot be trusted as in most cases the vein walls are too thin to hold. Step by step the front of the gland is cleared. The next step is to clear the lateral margins and ligate the arteries. The superior thyroid is much the easiest to secure, entering the gland from the top. Secure it between double ligatures, and cut, using an aneurism needle if necessary. The next step varies according to the operator, Treves going down and tying the inferior thyroid and the median if it exists. Jacobson urges

attacking the isthmus, which is probably the better plan. A steel director is passed between the isthmus and the trachea, and it is either ligated as a whole or cut, and the bleeding points ligated as found. The hemorrhage in either case, with care, is trifling. It will be found a good plan when ligating the isthmus to leave as much healthy gland tissue as possible encroaching on the tumor as far as the healthy tissue will admit. By doing this, if it is necessary to remove both lobes there will still be left the isthmus and a little healthy gland tissue on each side, and so the danger of myxedema will be avoided. The gland is now turned from side to side, lifting it from its bed slowly, proceeding downward. Make as little traction on the trachea as possible in freeing the internal lateral surfaces, as it is apt to cause intense dyspnea. The attachment between the lobe and trachea is often very firm and requires the use of knife or scissors frequently. Ligate each bleeding point as it appears until the lower limit of the growth is reached, when the most dangerous and difficult part of the whole operation is before us, namely, ligating the inferior thyroid and endeavoring not to injure the recurrent laryngeal nerve. Baumgartner and Cr  d   recommend ligating the branches of this artery as it enters the under part of the gland, as by so doing one is as far as possible away from the nerve. MacCormac also thinks well of this plan.

The gland being removed, and all bleeding stopped, close the wound with silkworm-gut sutures. Lightly pack the lower part of wound with sterile gauze for drainage. After applying the dressings the best way to retain them in position is by a bandage from the axilla below to the chin and head above, firmly stitching it to keep it in place. In case there is enlargement of both sides the surgeon is not justified in immediately removing the other side, but should wait for two or three months to see what effect the work already done will have on the remaining lobe. I have no theory to offer or explanation to give as to the why or wherefore, but the fact remains that when one lobe is removed the other frequently atrophies. This is well illustrated in the following case:

M. P., aged twenty-two years, of healthy parents; one brother and seven sisters, and all healthy. There is no family history of goitre. When ten years old first noticed growth in neck. It grew slowly but steadily. Did not respond to any treatment. When he was first seen he had a brassy tone of voice,

husky, brazen cough, and had had three attacks of suffocative dyspnea, one that almost proved fatal. Had coughing attacks that compelled him to rush into the open air to try to obtain relief. Had great difficulty in bending his head in order to follow his trade, that of a cork-cutter. His neck measured  $17\frac{1}{2}$  inches in circumference, which he could increase to 24 inches by straining. Both sides were about equally enlarged. The growth was soft and elastic, with ill-defined borders, extending from the angle of the jaw to the sternum.

On August 24, 1897, assisted by Dr. Theodore B. Appel, Dr. J. H. Musser giving chloroform, he was operated on. A goitre six inches in length by eight inches in circumference was removed from the left side of his neck. The fact that he could distend his neck from  $17\frac{1}{2}$  inches to 24 inches indicates the condition of the vein walls. Some of them seemed as thin as tissue-paper. It was absolutely impossible to use a hemostat, but each vein had to be ligated, using very great care not to tie too tightly as the catgut would cut through. The hemorrhage from a broken vein was very great, but we succeeded in removing the whole lobe with the exception of some healthy tissue, which was left with the isthmus. In the near future we intended to remove the right side, which was fully as large as the left.

The wound was closed with silkworm-gut sutures; iodoform gauze was lightly packed in lower part of wound for drainage. About two hours after operation I was hastily called to the hospital and found there had been a most profuse hemorrhage. Quickly cutting all stitches I opened the whole wound, turned out a large blood-clot, and found the ligature had slipped from the medium thyroid artery. It was easily picked up and again ligated. The wound was hastily closed, an intravenous injection of a pint of normal salt solution was done, and from a pint to a quart of the same placed beneath skin of breast and back. It was quickly absorbed. The patient rallied nicely and was discharged from the hospital in two weeks with the wound perfectly healed, save the lower angle where the drainage had been.

Within two weeks after leaving the hospital the decrease in the other lobe was readily perceptible, and within three months the growth had almost entirely disappeared. For a few months he was unable to speak in a loud tone of voice, but now he has fully regained his former volume of speech.

**ANESTHESIA AND ANESTHETICS, WITH  
A PLEA FOR THE MORE GENERAL  
EMPLOYMENT OF CHLORO-  
FORM AND ETHYL  
BROMIDE.**

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Much has been written—both in text-book and journal—in regard to anesthesia and anesthetics. Though the writer does not purport to set forth new theories, he will endeavor to call attention to a few practical facts, and make a further plea for the more general employment of chloroform and ethyl bromide.

The advancement and progression of this department of surgery presents for our consideration practically three drugs, and one gas, in order of their safety as follows: nitrous oxide, ether, chloroform, and ethyl bromide. The latter three are in liquid form, and have been used mostly alone; but solutions of these together, and with other drugs added, have been used from time to time, and still are in some localities very popular. The combinations of these various drugs have been erroneously called *mixtures*, for they are true *solutions*.

The various solutions of chloroform with ether, etc., are used with the idea of escaping the dangers of chloroform when used alone. They first received encouragement and recognition from the report of the chloroform committee of the London Medico-Chirurgical Society about 1862, who declared their superiority in point of safety.

No drug has yet been used for producing anesthesia that has not caused death.

Without doubt the success of securing an anesthetic with the least danger consists in adapting the boiling point of the narcotic to the temperature of the body. Many experiments based upon this theory have been made, the latest of note being those of Schleich. He has prepared three formulæ, the one designated as No 3 being advocated for general use. It consists of chloroform 30 Cc., petroleum ether 15 Cc., sulphuric ether 80 Cc. Dr. Willy Meyer recently read a paper before the Medical Society of the County of New York advocating its use. The Esmarch inhaler was used for the administration.

Dr. Meyer summed up by stating: (1) During the induction of anesthesia there was

no salivation, and rarely any accumulation of mucus in the trachea, and no cyanosis. (2) That during the stage of anesthesia rarely was there noticed any accumulation of mucus in the trachea, and no cyanosis. (3) The patient awakened more rapidly than from ether or chloroform narcosis alone. One drawback is the chlorine odor.

Ether, though recognized by the profession universally as the least dangerous liquid anesthetic, has its objections, and in some localities, viz., the Southern and Western States, is almost entirely supplanted by chloroform, or the A. C. E. mixture.

Statistics have been published from time to time to show the relative dangers of one anesthetic to another. These are imperfect at best, because there is no contradicting the fact that unreported deaths have occurred, for surgeons do not rush to record their mishaps and fatalities. Gurlt\* of Berlin gives a series of 51,846 cases for the year 1893: 32,723 were chloroform administrations, 11,617 of ether, 3896 with ether and chloroform, 750 with Billroth's mixture (A. C. E.), 2769 with ethyl bromide, and 91 with nitrous oxide. The total fatalities were twenty, and of these seventeen were due to chloroform. The average death-rate was 1 in 2587 administrations. The death-rate from chloroform was 1 in 1924 administrations. The statistics were compiled from sixty-three reports, twenty-one of which had been sent from fifteen German university clinics.

Judging from collateral reading and personal conversation with men who have pursued medical studies abroad, the foreign statistics absolutely fail to do justice to chloroform, the whole fault being due to the method of administration. The general custom is to cover the face with a folded towel, and administer it in much the same manner as they use ether, the towel frequently being held down upon the face. Such being the case the high mortality is readily accounted for. Chloroform, if carefully and properly administered, and the patient closely watched, should not give rise to the untoward symptoms so often reported.

Silk† was very much struck with the fact that the majority of fatalities occurred in the hands of men who had been graduated but a year or two. It seems to me this must refer to those men who have not had the opportunities afforded by serving as an in-

\* THERAPEUTIC GAZETTE, Aug. 15, 1894.

† *The Lancet*, April 28, 1894.

terne in a hospital, or reaped the benefits derived from the material proffered by their preceptor. This deplorable condition is due to the lack of systematic, practical teaching in anesthetics and anesthesia in the curriculum of our colleges, and certainly affords a most powerful argument for a more practical course in this very important subject.

Anesthetizing is looked upon by some as a menial position, but on the other hand a careful administrator is a respected man, and one in whom we can place every confidence; and his position is always a very responsible one.

"All's well that ends well" is a true saying, but when difficulties arise it is the experienced man that knows best how to meet all emergencies. "Practice makes perfect;" this especially applies to the administration of an anesthetic. The administrator should attend strictly to the patient, and be entirely oblivious of the operation. He should carefully watch the respiration, pulse, and general condition. Nothing is more objectionable or uncalled for than to push an anesthetic during the first stage of anesthesia—that is, prior to the destruction of consciousness. The smothering, strangling sensation so produced will be ever uppermost in the patient's mind, especially so if he or she has previously taken an anesthetic which was carefully administered.

The following are a few general rules which should be observed:

1. Whatever anesthetic is used, ethyl bromide excepted, begin it slowly, and *do not "push it" until the strangling, choking sensation has passed.*

2. Should the irritant cough occur, allow a little pure air to be breathed, and proceed slowly.

3. If rapid swallowing intervenes during the first stage, proceed slowly with the administration.

4. Should the patient struggle, do not allow those standing around to "throw" themselves over the chest and abdomen, as this seriously interferes with respiration. Oftentimes the patient can be restrained by simply bearing down on the shoulders. If necessary hold down the arms and legs, but keep off the chest and abdomen.

5. Inspire your patient with confidence by a few cheering words prior to beginning the administration, as it oftentimes quiets an otherwise nervous individual.

6. Watch carefully the respiration; see that air is passing in and out of the lungs without obstruction. Anticipate cyanosis by

carefully observing the color of the cheeks, lips, and ears.

7. Keep track of the pulse with a finger either on the radial, temporal, or facial artery. Note whether it is slow and full, or rapid, running, and weak.

8. *Keep the mouth shut*; this is the best prophylaxis against the patient "swallowing the tongue." Hold the lower jaw in contact with the upper with your hand throughout the entire anesthesia—that is, until the patient is removed from the operating table.

My method is as follows, and since adopting it the untoward symptoms have been reduced to almost *nil*, and the tongue forceps practically discarded, although it is always safe to have a pair at hand: The ring and little fingers of the one hand are "hooked" under the inferior maxilla, just to the right of the symphysis menti, if the right hand is used, and to the left thereof if the opposite hand is employed. The thumb is placed across the nose at its base, and assisted by the first and second fingers, maintains the cone in its position over the nose and mouth. If the little finger is allowed to slip backward the pulsations of the facial artery can be distinctly felt as it passes over the border of the jaw, at the anterior edge of the masseter muscle. The remaining hand is then entirely free. Although somewhat tiresome, especially during a prolonged anesthesia, still this method of keeping the mouth closed is, as stated before, the best prophylaxis against the dropping backward of the tongue in the pharynx, with its accompanying train of symptoms, as obstructed respiration, cyanosis, etc.

The following may be practised, especially when chloroform is being administered by means of a towel: Place your forearm over and above the face of the patient, with the back of the hand arched upward in such a manner that the palmar surface of the hand will be to one side of the nose and the fingers separated, and to one side of the mouth, the first finger being curved around the lower lip. Extend the fingers far enough to enable the tips to "hook" over the inferior maxilla, to one side of the symphysis menti, and in this manner hold the mouth shut. The thumb should be allowed to project over the nose about its middle third. The nares and mouth will thus occupy a free breathing space formed by the thumb on one side, the index-finger on another, the remainder of the arc being open. The towel (a single layer only being employed) should be spread over the face; the arm and hand, in addition to the



method already mentioned, will also serve to keep it a sufficient distance from the skin, and permit of a bountiful circulation of air. What is gained by this method? The mouth is kept closed; the breath as it strikes the fingers during expiration can readily be detected, and the respiration thus noted; the towel does not come in contact with the face, hence burning of the skin is obviated; and a sufficient quantity of air is allowed to circulate under the towel.

Remember that the epigastric region may rise and fall and still no air pass into the lungs. This is an important point. The obstruction may be due either to dropping back of the tongue or an accumulation of mucus in the pharynx, larynx, or rarely the trachea. If due to the former, open the mouth by depressing the lower jaw, using a mouth-gag if necessary, and seize the tongue with a pair of "tongue-holding forceps," and draw it forward, then close the mouth and keep it closed. Use the variety of forceps that has one fenestrated blade, or Houze's tongue-holding forceps. Under no consideration use the type of forceps in which one blade is pivot-shaped and punctures the tongue; this procedure is barbarous, and entirely uncalled for. Passing a piece of silk through the tongue with a needle, and by this means holding forward an incessantly receding tongue, should also be relegated to the past. The best prophylaxis against a receding tongue is to keep the mouth shut from the beginning, and permit respiration only through the nostrils. If mucus accumulates in the pharynx, clean it out. Another method of bringing the tongue forward is to seize the angles of the lower jaw on either side and gently pull it forward; by this procedure the condyle of the lower jaw is "thrown," so to speak, on to the eminentia articularis. This movement will invariably bring forward the tongue, and remove the obstruction which has impeded respiration. If the tongue persists in dropping back, turn the head to one side; if this fails, allow the head to remain in the same position and hold the tongue forward. It will rarely be necessary to resort to the latter procedure.

9. Always protect the eyeball. Place a single layer of towel over the eyes, and hold it there with the inhaler that is being employed. If administering the anesthetic on a towel, use another towel for the ocular protection. This will prevent the vapor from irritating the sensitive cornea and conjunc-

tiva. Never touch the eyeball to ascertain if narcosis is complete, as it is unnecessary, and has caused not a few attacks of conjunctivitis and suppurating keratitis. Simply press the upper eyelid down gently on the eyeball; if the patient makes no attempt to close the eyelids, then insensibility is complete.

10. Never administer an anesthetic to a female unless another person is present; this should be imperative.

11. Should vomiting begin push the anesthetic. During the act of emesis, prevent the tongue from slipping back into the pharynx. After vomiting ceases remove the accumulated ejecta from the mouth and pharynx. If the site of operation is above a line drawn around the chest, at the level of the nipples, turn the head to the opposite side, in order to prevent the ejected material gaining access to the wound.

12. Dilated pupils failing to respond to light signifies deep anesthesia; stop the narcotic. Dilated pupils which respond to light are significant of one of two things—"coming out" of the anesthetic, or passing into the stage of deep anesthesia. A narrow, contracted pupil is a warning of danger.

*Nitrous Oxide.*—Having had no practical experience with this agent I do not feel qualified to discuss it. My friend, Dr. Charles McNeill, of New York, tells me that the majority of dentists while operating on patients under the influence of this gas throw the head backward into almost complete extension, and invariably cyanosis is present. He obviates this by throwing the head forward in flexion. Mention of this is made, as it may prove a valuable point.

*Ether.*—The safest preparation of ether by far is the product of the laboratory of E. R. Squibb & Son. Without doubt ether is the most universally used anesthetic, but it has its shady side of mortality. To its disagreeable odor and nausea is due the fact that it is abhorred by the laity. It is rare not to have nausea and oftentimes vomiting following its use. Should the patient be properly prepared beforehand, these disagreeable and at times dangerous after-effects are reduced to a minimum.

*Contraindications to the use of ether:* The first of these is in renal disease. (Hare states that quantity for quantity chloroform is more irritating to the kidneys than ether, but as a much larger quantity of the latter would be used the former is to be preferred). A second contraindication exists in those who

have previously borne it badly; in atheroma, owing to the prolonged struggling under this narcotic, it had best not be used. In very aged persons with emphysema, asthma, chronic bronchitis, old pleurisy, cardiac hypertrophy, fatty heart or valvular lesions, ether is dangerous; and in habitual drunkards, or persons who drink in small quantities but frequently during the day, and in limited action of the lungs from adhesions caused by an old pleurisy or pneumonia, it is an unsafe anesthetic.

In the administration of ether either a towel or an inhaler can be used. The former should be folded to simulate a cone, allowing a small opening to remain at the top, so that the ether can be poured on the "cone" without removing it from the face. A formal inhaler is to be preferred, especially the one suggested by Dr. Oscar H. Allis, and described by him in the *Philadelphia Medical Times*, No. 162. The collapsible variety of inhaler is, however, unsatisfactory, as a great deal of ether is wasted, and a longer time is required to place the patient under its effects. A suggestion in regard to "lacing" or "threading" the inhaler may be made: The bandage that is used should preferably be doubled; this obviates the great amount of space between each layer, and presents a larger area for the evaporation of the drug, and when poured on it is not so apt to drop through on to the face. The bandage should always be renewed after each individual usage. A piece of gauze should be placed across the metallic face-piece, next to the bandage, as this affords double protection.

In administering ether always begin slowly, increasing it gradually, but as stated before, do not push it until the suffocating sensation has passed. Should the time consumed to place the patient under its influence be prolonged, then a few drops of chloroform will prove efficacious; this also applies to those cases that prove pugnacious under its exhilarating influence. If the patient bears the ether badly, which condition is manifested by the constant cyanosis, or should the respiratory tract become so filled with mucus as to form an impediment to breathing, then chloroform should be substituted.

**Chloroform.**—This drug has been much abused by the profession at large, and earnestly condemned, more however on theoretical grounds than practical observations. The high mortality in comparison to ether is due not so much to the drug, but the careless manner in which it is administered. In reviewing the tables of death, the causes in

the majority of cases are fatty degeneration, endocarditis, and other organic lesions, a few from "collapse," and in other cases the cause not given. *Quite a number of the patients have been under the care of a dentist.* Very few of the dental colleges include the teaching of the use of anesthetics other than nitrous oxide; hence a large majority of the graduates of dentistry leave their alma mater with little theoretical and no practical knowledge. Is this not sufficient argument for the high mortality referred to this agent? Indeed, graduates of dentistry should not be permitted to administer an anesthetic other than nitrous oxide, for owing to the lack of primary teaching they are entirely incompetent.

Chloroform is an ideal anesthetic, and if properly administered and carefully watched the majority of the untoward symptoms so often referred to will be eliminated. If the graduates of to-day would only pay more attention to the administration of an anesthetic during their collegiate course, chloroform would be more extensively employed and skilfully administered.

Practically there are no contraindications. It should be used when ether has been previously borne badly. It is the typical anesthetic for children and in obstetrical practise. It may always be employed in operations around the mouth and face when the actual cautery is to be used, and in the conditions given under the head of "contraindications" to ether.

In the administration of chloroform it is advisable to spread cosmoline over the face, around the nose and lips, to prevent burning of the skin, should the fluid drop thereon; but if due care is exercised this procedure may be dispensed with. Do not use a cone or conical shaped inhaler. The Esmarch inhaler is to be preferred. One just as good and giving every satisfaction, and far cheaper, can be made as follows: Procure a large-size gauze wire tea-strainer, with a long wire handle; cut to its shape a piece of merino, allowing sufficient edge to make a hem, pass a draw string through the hem, tighten, and fasten the strings to the handle. In the Esmarch inhaler a lady's handkerchief properly folded can be readily utilized for a covering. The bottle containing the drug should have but one tube passing through the cork—metal tubing preferable to glass. When a single tube is used the drug *drops* out, when two tubes the fluid *runs* out, and it is impossible to gauge the amount being

used. A single layer of a towel as previously described is efficacious.

Do not apply more than two or three drops at the beginning, then gradually increase until anesthesia is produced. Watch the respiration carefully. A few short inspirations, or holding the breath for a while, is sure to be followed by a full, deep inspiration; and here is where a great danger lies, for in this deep inspiration an overdose may be taken. To guard against this is easy; simply watch for it, and when it appears withdraw the chloroform. Remember that the danger from chloroform is often from an overdose, but that the overdose does not consist entirely in the quantity that may be taken during the administration, but often in the quantity that is taken at any one inspiration—in fact, to the suddenness with which the drug is introduced into the blood, and the concentrated form in which it arrives in the brain, producing paralysis of the respiratory center.

Lentz & Sons, of Philadelphia, make an apparatus by which oxygen is impregnated with chloroform, and is alluded to as "oxygenated chloroform." It consists of a forty-gallon cylinder of compressed oxygen. From this cylinder the oxygen is conveyed through rubber tubing to a graduated wash bottle, containing chloroform. The oxygen is introduced of course below the level of the chloroform, the gas passing through the liquid, and out of the bottle through another rubber tubing to the inhaler. The modified inhaler of Downes should be used in preference to the original, with the rubber-bag attachment. By changing the tubing, chloroform can be shut off, and pure oxygen administered. By this method the patient is more readily placed under its influence. While under its narcotic effects the general systemic condition is better than that of any other anesthetic, anesthesia can be maintained for a longer duration with a minimum amount of shock, and the subsequent nausea is rarely present, and then very slight.

In children chloroform is quicker, more reliable, and always to be preferred. A few whiffs, and the resisting struggles are allayed.

In obstetrics chloroform is used with comparative safety to the mother, although a few deaths have been reported, and is to be preferred to ether, even in long and instrumental labors, notwithstanding the fact that some observers under these conditions believe ether safer to the child. The employment of this drug during labor should be limited

to the second stage, excepting in primiparæ when the pains of the first stage become excruciating and unbearable. It should be administered during the pains, and suspended during the intervals—just a sufficient quantity to take off the keen edge of the pain. Experience has proved that anesthetics do not arrest the contractions of the uterus, but weaken the normal resistance of the perineal muscles, unless during its administration complete insensibility should be induced. The anesthetic so employed has no untoward effect on mother or child.

The employment of a narcotic of this kind, especially in primiparæ, has a tendency to quiet the overexcited and nervous condition, which will prove a large element in the successful conduct of the labor. The drug should not be administered during the third stage; its value ceases after the expulsion of the child. The proper use of the drug does not necessarily favor post-partum hemorrhage.

*Treatment of Impending Death.*—First remove the inhaler, and lower the head by elevating the foot of the table. Draw the tongue forward, and allow it to recede, about sixteen times per minute. For the pulse give a hypodermic of strychnine sulphate,  $\frac{1}{16}$  to  $\frac{1}{8}$  grain, *pro re nata* till an effect is produced. As a rapid stimulant a hypodermic injection of aqua ammonia may be given in the buttock, although this makes a slough; hypodermic injections of atropine sulphate,  $\frac{1}{16}$  to  $\frac{1}{8}$  grain, should be given *pro re nata* till an effect is produced. If the respiration has ceased, give a hypodermic of atropine sulphate,  $\frac{1}{16}$  to  $\frac{1}{8}$  grain, and repeat as often as necessary. Give a rectal injection of turpentine (this has often started a suspended respiration; stretching the sphincter and also has a favorable influence), and establish artificial respiration by instituting the Sylvester-Hall method.

Do not continue an operation immediately after the patient recovers, but wait until the pulse and respiration have been energetically restored. Unlike ether, *chloroform gives little or no warning*; the symptoms which usually occur to warn one are sudden paleness or lividity of the countenance, with shallow breathing, absence of or a rapid running pulse. The patient presents the condition of complete collapse and relaxation.

*Ethyl Bromide.*—This drug is very seldom used at the present time owing to the reluctance with which the profession accepts it. In the hands of Dr. E. E. Montgomery and others it has proven satisfactory, and he has found a field for its employment. It is a hy-

drobromic, or bromic, ether, an inflammable, volatile liquid, with a burning taste, and an odor not unlike chloroform; its boiling point is  $38^{\circ}$  to  $40^{\circ}$  C. This is not ethylene bromide, which is poisonous. It is not caustic, nor even irritant, when compared with chloroform, and can be ingested without difficulty. This drug is supposed to possess properties intermediate between those of chloroform and ether. Dr. Laurence Turnbull was the first to experiment with this ether upon man. He makes the following statement:\* "I found it was colorless, with an agreeable odor and pleasant taste, the boiling point  $40.9^{\circ}$  C., and its density heavier than water. When inhaled it produced more of the agreeable effects of chloroform, and did not increase the pulse over its normal beat, whilst its action was very rapid. It leaves an odor of mustard to the body. There is a pricking feeling of the skin at the elbow and in the hands, with a rapid loss of power to move; the skin is in a few instances moist, but in the majority of cases is natural. It differs from ordinary ether in the stage of excitement being short, the sedation and subsequent elimination rapid."

My observations from the use of this drug as an anesthetic substantiate the above, with the following addition: There is a primary dilatation of the pupil, and the eyes are suffused and congested, which condition passes away in a few minutes. I have given it for gynecological examinations, reducing dislocations, or any other procedure likewise short in duration. I have frequently administered it to children when rapid dilatation of the tear ducts was done.

In the administration of ethyl bromide I use a folded towel, pour about half a teaspoonful on, and apply this to the nose, holding the edges of the towel close to the face, and add the same quantity every few seconds until narcosis is produced.

Various methods have been used to prevent the nausea subsequent to the administration of an anesthetic. The most favorable seems to be the inhalations of oxygen, which are given immediately after the patient is placed in bed.

To conclude, an earnest plea is made for the more general employment of chloroform, and also for ethyl bromide. With the latter, owing to the very limited time required to produce its effects, the post-anesthetic symptoms are practically *nil*, the

patient reacts very readily, and is able to resume routine duties within a short time after consciousness is restored. Above all self-confidence is needed; keep a cool, clear head, and be prepared to meet any emergencies that may arise.

1420 TIOGA STREET.

#### A CASE OF THYROIDECTOMY.

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The following case is reported because of the marked severity of the symptoms produced by a tumor of moderate size, and because the operation of thyroidectomy is sufficiently dangerous to make surgical interference the subject of earnest consideration. The close proximity of vital structures, the possibility of sudden and profuse hemorrhage, the difficulty of preserving asepsis near the mouth, and the caution required in administering a general anesthetic, all combine to make the operation a serious one. But in cases where the symptoms are urgent, relief is imperative. The encouraging statistics placed on record by Kocher in 1895, of nine hundred cases of benign goitre upon which he had operated with a mortality of but one per cent., associated with the admirable results obtained by Kronlein, Sulzer, and others, influenced the writer in advising operation in the case detailed. The unsatisfactory results obtained by the use of such internal remedies as iodine and its compounds in cases of long standing, and the real though moderate danger in using injections of iodine, iodoform or ergotin into the gland, make the surgical method of treatment practically the only one that relieves the patient. The history of the case is as follows:

Mrs. S. K., German, housekeeper, aged fifty-three years. For the past two or three years the patient had noticed a gradual, painful enlargement of the right lobe of the thyroid gland; more recently, disagreeable symptoms had developed; and at the time of the first examination she was suffering from marked venous congestion of the face, frequent attacks of faintness and cardiac palpitation, insomnia, hoarseness, and an irritating cough evidently due to pressure on the recurrent laryngeal nerve; there was no difficulty in swallowing, and dyspnea was marked only on exertion.

\*Anæsthetic Manual.

The hypertrophied gland, about the size of an orange, on the right side of the trachea, extended laterally beneath the sternomastoid muscle and downward into the supraclavicular space, was freely movable beneath the skin, and apparently semi-cystic in character. The pulsation transmitted from the underlying carotid vessels was very evident on inspection and palpation. No organic cardiac disease was present, but the patient was extremely nervous and vasomotor phenomena were marked.

The operation of enucleation was performed at St. Joseph's Hospital, Philadelphia, on January 7, 1897. The anesthetic used was oxygenated chloroform. After thoroughly aseptizing the neck, an incision about four inches in length was made along the anterior border of the sternomastoid muscle, ligating before cutting the anterior jugular vein and exposing the bluish-white capsule of the tumor; the overlying tissues were slowly incised, and every bleeding point grasped with a hemostat as soon as cut, in this way avoiding copious hemorrhage. The growth was enucleated with the fingers and the Allis dissector, first from beneath the muscle, working from the muscle toward the trachea and exposing the carotid artery for two and one-half inches; extreme care being taken to avoid injuring the recurrent laryngeal nerve. The tumor was luxated forward and the isthmus forming the pedicle was ligated in sections with strong chromicized catgut, and the gland removed, leaving sufficient stump beyond the ligature to prevent the retraction of the tissue and subsequent hemorrhage. Every bleeding point was carefully secured and ligated with fine catgut, the wound freely irrigated with hot water, a drainage tube and strip of iodoform gauze introduced, and the external incision closed with interrupted silkworm-gut sutures.

The most alarming symptom during operation was the interference with respiration produced by the tugging on the trachea during the enucleation. For the first forty-eight hours after operation the pulse was weak and quite rapid, ranging from 130 to 150 per minute. This was treated by the use of atropine and strychnine, and the subsequent convalescence was uneventful, the patient leaving the hospital on the eighteenth day after the operation. No contraction or deformity has resulted from the scar, and the health of the patient at the present time is excellent.

*THE IMPORTANCE OF THE EARLY RECOGNITION AND TREATMENT OF ACUTE INFLAMMATORY GLAUCOMA.\**

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The importance of the early recognition and treatment of acute inflammatory glaucoma is universally acknowledged among physicians who have to do with ophthalmic work. But that some of us fail to recognize its importance is evidenced by the fact that occasionally patients are seen in whom the acuity of vision has been much reduced, or even totally abolished, because the disease had existed for some time before it was sufficiently recognized for the proper treatment to be instituted, or because of the use of the mydriatics, either being an almost fatal error as far as the patient's vision is concerned.

It is just as important that the general practitioner be thoroughly familiar with the symptoms and treatment of this condition as it is for the ophthalmic surgeon, because in the majority of instances he is the first to be applied to for relief; and the condition is one that if not quickly recognized and the proper treatment instituted the patient's visual acuity usually suffers great damage.

The writer does not propose to discuss the many theories that have been suggested as to the etiology of the affection. Suffice it to say that whatever the primary cause may be, it is believed that the mechanical cause is the blocking up of that angle of the anterior chamber known as the "filtration angle," and that it is kept up to a considerable extent by the crowding into it of the iris.

A number of prodromes, by no means constant, are occasionally found to precede the appearance of the glaucomatous attack. It is stated that a desire to change one's reading glasses more frequently than is usual should be regarded with suspicion. Attacks of "foggy vision," though lasting for a few moments only, perhaps accompanied by slight injection of the eyeball, and the appearance of a halo of colors around artificial lights, are sometimes met with and are sufficient in themselves to cause a very careful examination to be made of the eyes and more se-

\* Read by title at the forty-eighth annual meeting of the Medical Society of the State of Pennsylvania.

vere symptoms watched for, and, if possible, guarded against.

The attack of acute inflammatory glaucoma usually presents a combination of symptoms so thoroughly characteristic of the affection that with the exception of a few extremely rare instances it should never be mistaken for any other disease. Appearing as it does very frequently at night (and there seems to be a marked tendency to occur in the latter part of the night or early morning), there is ordinarily excruciating pain throughout the side of the head, which is sometimes accompanied by nausea and vomiting. The extremities may be cold, or there may be even flushing with slight fever. These symptoms are apt to cause the uninitiated to suspect some severe constitutional origin, but if the eyes be carefully inspected there will be found some swelling of the lids and some edema of the subconjunctival tissue. The eyeball will be intensely injected, and the cornea will in most instances be hazy and partially anesthetic. The appearance of the latter can be compared to a piece of cold glass the surface of which has been breathed upon, and if its sensibility be tested by widely separating the lids and touching it with a wisp of absorbent cotton, it will be found that the impulse to close the lids that exists in normal eyes is entirely absent, or not so decided as usual, according to whether total or partial anesthesia is present. The aqueous humor is more or less turbid and the anterior chamber as a rule is much more shallow than normal. The pupil, which is one of the chief points of difference between this and certain other affections with which it is mostly confounded, is dilated either moderately or widely, and if it reacts at all does so extremely sluggishly. The iris is discolored, and if the tension of the eyeball be tested by palpation through the closed lids with the index-fingers of both hands, it is found to be elevated—that is, the eyeball is harder than its fellow, or if the latter be also affected, harder than an eye the tension of which is known to be normal. The patient's visual acuity is greatly reduced, oftentimes only the ability to distinguish between light and darkness remaining, and if an attempt be made to examine the interior of the eye with the ophthalmoscope it is found impossible to get any view of the fundus.

If no treatment be instituted these symptoms may last from a few days to a few weeks, and when the eye recovers it is found that the visual field is somewhat contracted, the

iris less mobile, central vision less acute, the optic nerve slightly cupped, and the tension more or less elevated. It is rare for a patient to become permanently blind in the first attack; but experience teaches that the attacks recur with increasing frequency, each one leaving the vision worse than before, until total blindness ensues, resulting in the condition known as *glaucoma absolutum*.

The two diseases with which acute inflammatory glaucoma is most likely to be confounded are acute conjunctivitis and acute iritis, and if the treatment of iritis be instituted in a case of glaucoma, or *vice versa*, much harm may, and probably will, result therefrom. Acute inflammatory glaucoma presents a sudden onset, a rapid reduction of the visual acuity, a hazy and more or less anesthetic cornea, a widely dilated pupil responding very sluggishly if at all to the various reactions, and elevated tension. Acute iritis presents a gradual onset, not so marked a reduction of vision, as a rule, as in glaucoma, the cornea is not so hazy nor anesthetic, the pupil is contracted, and if the iritis has existed for a short time the iris is attached to the capsule of the lens, the tension remaining unaffected. Acute conjunctivitis presents no marked reduction in the visual acuity, no severe pain as is found in iritis and glaucoma, the pupil reacts promptly, and the tension is unaffected.

The treatment of acute inflammatory glaucoma is of two kinds, medicinal and surgical. The medicinal, if employed alone, is usually of temporary benefit only, surgical intervention being required to check the progress of the disease. Leeches applied to the temple and hot fomentations to the closed lids assist in reducing the inflammation and alleviating the pain, though if the latter be very severe hypodermic injections of morphine may be required. Rest in bed if the patient be in a weakened condition, the administration of nourishing diet and stimulants if required, darkening of the room if there be much dread of light, and the use of smoked glasses when out-of-doors, are measures to be advised. The internal administration of salicylate of sodium in large doses also seems to be of benefit in some cases.

The object of primary importance is of course to reduce the intra-ocular tension as rapidly as possible, and this may be attempted by medicinal or surgical measures. It seems to be good practise to instil into the eye a drop or two of the solution of eserine (about two grains to the ounce), or pilocarpine

(about four grains to the ounce), every half hour for six or eight hours, using at the same time a four-per-cent. solution of cocaine to assist in relieving the pain and to render the iris more susceptible to the action of the myotics; and if at the end of this period the pupil remains dilated and the tension still above the normal, it is better to adopt some surgical intervention at once. If, on the other hand, the pupil responds to the action of the myotic and the tension becomes normal, it is not necessary to operate until the attack has subsided.

The operations that are performed for the reduction of intra-ocular tension are paracentesis of the anterior chamber, anterior sclerotomy, posterior sclerotomy, and iridectomy. The first of these is a temporary measure, but each of the last three has advocates who claim that it is curative. The writer is one of those who believe that a carefully performed broad peripheral iridectomy is the best of the measures in the majority of cases, and that it should be performed during the inflammatory stage if drugs fail to produce amelioration of the symptoms. If, however, the symptoms are improved by the use of the myotics, in conjunction with other medicinal measures, and the eye recovers from the attack, the operation should not be performed until the eye becomes entirely quiet. That it should be performed at this time, both as a preventive and curative measure, has been proved by thousands of cases.

Massage of the eyeball through the closed lids and application of galvanism have their advocates, but the consensus of opinion seems to be in favor of some one of the surgical procedures, and preferably iridectomy.

116 SOUTH 19TH STREET.

#### ON THE MANAGEMENT OF PATIENTS WITH TYPHOID FEVER.\*

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The title of this brief communication expresses the principal idea it is intended to enforce. In no other disease is it more important to bear in mind that the true function of the physician is not to attempt to interfere with the normal evolution of recovery, or

the processes by which this is brought about, but rather to guide his patient safely through them. Within recent years two series of experiences have impressed upon the profession in America (one from the negative, the other from the positive side) the needed lesson that temperature in itself is not to be feared, and as a symptom is not to be directly combated, save under extreme circumstances. The unfortunate results of treatment by the coal-tar products have practically demonstrated the danger of mere antipyretic dosing; while on the other hand the excellent results obtained by the use of cold water, after the method of Brand and in other ways, have shown that the febrile process expressed by high temperature may readily and safely be controlled within certain limits, to the great increase of the patient's comfort, and with improvement of his chances of recovery.

Although I advocated the Brand system\* and employed it according to my limited facilities before many of its present advocates had seen fit to forego the use of antipyretic drugs, I do not hesitate to place myself on record against the extreme views now expressed in its favor. Of all routine methods of treatment it is the best, but no routine treatment is good. The patient must be taken into consideration; and by this I mean not alone the individual, his temperament and idiosyncrasies, but all surrounding circumstances, and the manner in which he is reacting against the morbid processes, as expressed by all the symptoms of the case.

It is the greatest mistake possible for the physician to look upon all the disturbances of function seen in sickness as in themselves morbid, and requiring to be antagonized.† Many of them are expressions of the natural tendency toward recovery; just as the swaying of the tight-rope walker to left and right is not an evidence of ataxia but of the effort and the ability to preserve his equilibrium. To strike up the arm of the funambulist would cause his fall; and to strike unnecessarily or violently at the temperature, the diarrhea, the cough, of a patient with enteric fever may precipitate him from safety into the grave. The physician, knowing the natural course of the disease, its dangers and its complications, must watch carefully the

\* *Medical and Surgical Reporter*, Philadelphia, June 25, 1887.

† I have discussed this question more fully in an address entitled "Some Thoughts Concerning Disease and Recovery in Their Relation to Therapeutics," *THE THERAPEUTIC GAZETTE*, Sept. 15, 1896.

\* Read before the Medical Society of the State of Pennsylvania, Harrisburg, May 17, 1898.

tendencies exhibited in the individual case, and safeguard his patient accordingly.

Taking for granted that the well-known rules of diet are observed (and as to diet, while there must be the same careful individualization as in other respects, some patients requiring much food and some doing far better with little food, I usually advise small quantities of the most easily absorbable foods—preferably pancreatized milk or (home-made) expressed beef-juice, administered every second or third hour), and that the hygiene of the sick-room is properly cared for, water, and often cold water, is the one agent of greatest usefulness in the management of patients suffering with enteric fever. It should be used freely in every case, internally as well as externally. Too often nurses unless instructed will wait for the patient to ask before offering him water to drink. This is not good nursing. The patient may be too dull to realize even the sensation of thirst. Nurses should be instructed to give at least a quart of water to drink in the twenty-four hours—boiled water if there be any doubt of its purity. In many cases systematic sponging with cool or cold water will fulfil all the indications for external hydrotherapy. The sponging must be thoroughly and properly done. Nurses must be specifically and carefully instructed in its details. Cold packing, rubbing with ice, and the like, may be used in cases of hyperpyrexia in which the bath is not available; but when available in cases severe from the outset, or which become severe in spite of treatment, the systematic cold bath should be instituted. The inexperienced will do better by following the rigorous method of Brand than by attempting to modify it. The experienced will introduce such modifications as each individual case seems to require.

In a ten minutes' paper, and upon a subject so thoroughly discussed, one cannot take up much time in details. Yet success depends upon the care given to little things, and I must here note that many nurses fail to prepare the bed properly for the reception of patients after the cold bath, and it is necessary for the physician to give specific instructions to have heated blankets ready; to receive the patient upon a warm sheet, which is to be tucked in so as to prevent two wetted skin surfaces from coming in contact, and which can be used for drying the patient and should then be removed to permit him to lie between the two warm blankets. The use of red wine rather than

whiskey to give the patient before and after the bath is advisable. In some cases the use of aromatic spirit of ammonia answers the purpose. Between the tenth and twelfth days it is doubtful whether plunging should be begun. After the twelfth day the inexperienced should never begin plunging. Plunging begun earlier should be continued or discontinued according to circumstances. When plunging is not well borne, or when for any reason it has not been instituted, frequent cold or cool sponging should be carried out. This is partly to reduce temperature, but largely, like the bathing, to promote general metabolism, to stimulate excretion, and to keep up the tone of the peripheral vessels. Too much stress can hardly be laid upon this latter factor. The effects on temperature, pulse, respiration, excretions, sleep, and general comfort must be the guides as to the time, temperature, and other details of the external application of water, whether by plunging or sponging. Too great a fall of temperature after sponge bath or plunge bath is harmful. The pump-handle charts resembling septic fever shown in some hospital wards where typhoid patients are plunged, are bad charts. They are always too long; they often exhibit unnecessary relapses. A fall of one and a half degrees F., or at the most, of one degree Centigrade, is enough for a single bath. Nor should patients be awakened every two or three hours to have the temperature taken or to be sponged or bathed. They should be allowed to sleep undisturbed, if they can, for four or five hours, even when the applications are being made every second hour during wakefulness. It may be here interpolated that the same caution as to waking the patient for food should be observed.

To reduce temperature, should this be thought necessary, and to prevent or control tympanites or hemorrhage, the continuous application of ice to the abdomen—usually over the right iliac fossa—is useful. Sometimes it is advisable to intermit the use of ice, or to alternate the application of ice to the head and abdomen. In cases of severe nervous and cerebral symptoms or very high temperature there may be continuous application of ice to both head and abdomen. Sometimes an ice-bag over the precordium is conducive to comfort. McCormick has had excellent success with the use of guaiacol externally.

Internal medication is useful. I am positive as to this. The bowels should be



cleansed by enema on admission (unless after the tenth day), after which, according to circumstances, a few small doses or one large dose of mercurous chloride (calomel) should be given. After the "calomel stool" intestinal disinfectants may be usefully employed. These, as I have elsewhere expressed it, may not kill Eberth's bacillus, nor neutralize its toxins, nor chase after it into the spleen or cerebrum; but they do render the patient's intestine a less favorable breeding ground for this organism and its many named and unnamed congeners; they do diminish the formation and hence the absorption of various named and unnamed toxins; they do render the course of the case less severe. I affirm this unhesitatingly as the result of a sufficient clinical study. Laboratory explanations may be found hereafter.

Of drugs of this class no one agent shows so marked a superiority over others as to warrant special claims in its behalf. One may use guaiacol or its combinations, of which I prefer the carbonate; phenyl salicylate (salol), betanaphthol or its benzoyl compound (benzo-naphthol), creosote or its carbonate (cresotal), carbolic acid and iodine, and the like. I usually employ salol or guaiacol carbonate in doses of about five grains every second to fourth hour; more recently I have used benzo-naphthol in doses of ten or fifteen grains. If diarrhea is troublesome, bismuth salicylate may be used in conjunction with the more powerful antiseptic, or beta-naphthol-bismuth (orphenol) may perhaps be equally useful. If constipation be a feature of the case enemata are usually necessary, though calomel in small doses may be used in some instances. When the enema is used it should be repeated, if necessary, every forty-eight hours, except during the period when ulceration is at its height, say from the twelfth to the sixteenth day, when the bowel should be let alone.

If notwithstanding the free use of water the urine is not excreted in sufficient quantity (that is if it be less than 30 ounces in a day) some mild diuretic, as solution of ammonium acetate, or sweet spirit of niter, or infusion of buchu, should be given. This is rarely necessary, as the water drunk is usually an efficient diuretic, and the stimulation of the skin by water and friction in tubbing or sponging likewise assists excretion.

During the second week strychnine is useful in small doses as a mild tonic stimulant. One may give from  $\frac{1}{16}$  grain to  $\frac{1}{8}$  grain every second to sixth hour. The smaller dose is

preferable unless the prostration of the patient be excessive. During the third week the dose of strychnine may be increased to  $\frac{1}{16}$  grain every third hour, if need be. Alcohol is rarely necessary before the third week, and often is unnecessary throughout. It is to be given not as a stimulant, but as a food.

A word as to an old-fashioned remedy may be permitted. When the tongue is dry, harsh, fissured, covered with brownish fur, turpentine is useful beyond doubt. Sufficient must be given to produce an effect upon the intestinal mucous membrane. The usual dose is about 15 drops in emulsion or syrup of acacia, every second to fourth hour. If any sign of renal irritation develop turpentine must be abandoned. I have, however, never seen it do harm, and have seen it do good too often to be laughed out of its use. The occasion for it usually arises during the third week, or during convalescence. It also serves well in cases of tympanites or hemorrhage. In some cases dilute hydrochloric acid serves a good purpose, late or early, according to circumstances, in maintaining digestion and preventing gastro-intestinal fermentation and tympanites. When hemorrhage occurs the quantity of fluid of any kind administered, water or food, must be reduced to the lowest point. Milk must be stopped and beef juice substituted.

Time will not permit of extended reference to complications; to say they are to be met on general principles is to repeat what I have stated to be the main thought of this paper; that good judgment in the individual case, and the use of measures as simple as possible, will give a low typhoid mortality. The objects to be held in view are the patient's rest and comfort; the prevention of nervous symptoms by the prevention of hyperpyrexia and toxemia; the avoidance of rapid fluctuations in the condition of the patient, and especially of such abuse of antipyretic agents or hydrotherapeutic measures as will convert the temperature course from that of a continuous to that of a remittent fever; the sustentation of the patient's strength by judicious feeding, avoiding extremes, and by the judicious use of tonic medication and of agents acting upon the alimentary canal; the maintenance of excretion at a height sufficient to flood out from the tissues the increased products of waste, the peccant humors of the ancients; above all, the strict avoidance of meddlesome interference with necessary processes in the development of the case toward recovery.

# The Therapeutic Gazette

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## Leading Articles.

### ACCURACY IN THERAPEUTICS.

It is but a few decades ago that physicians, ignorant of the true action of drugs and dependent upon pure empiricism in their uses, were accustomed to prescribe a large number of medicines for each patient with the hope that one or more of them would seek out the difficulty and remove it. This method of the "shot-gun" prescription not only rested upon ignorance of the action of drugs upon living tissues, but far more upon ignorance of the underlying causes of disease and the pathological lesions which resulted therefrom.

Every advance in pathological knowledge finds an accompanying advance in therapeutic procedures for the relief of the affection described, and clear ideas of the conditions present enable the physician to inaugurate a plan of treatment directly applicable to the state before him. This has resulted in the employment of single remedies to produce definite results, and this again has necessitated the preparation and use of medicines so carefully prepared that they can be relied upon to produce an exact effect. As

long as human beings differ one from another in their characteristics the personal equation must be an active factor in medication, but the difficulty of having a similar individual difference in preparations of the same drug is now done away with to a large extent by those manufacturers of medicinal substances who use advanced methods of standardization and take a pride in the accuracy of their finished products. In other words, the time has come when the physician, face to face with a dangerous condition in his patient, should not use products concerning which doubt is possible. It is the hunter's desire when shooting a dangerous animal to use a rifle so accurate and ammunition so reliable that nothing that scientific skill can bring to his aid is lacking, and he must feel that aside from the possibility of error in his own judgment everything he uses must be of the best. So, too, the physician when prescribing should have every confidence that the remedy he is using is reliable and capable of causing a definite effect in a given dose, as by this means he eliminates an uncertainty which may seriously warp his judgment if it is allowed to exist.

At the present time nearly every drug employed in medicine can be so prepared as to be normal in its strength and constant in its effects, so far as its own power is concerned.

When practically all the influence of a remedy rests upon an alkaloid the profession are in the habit of using this alkaloid in place of ordinary galenical preparations, but there are drugs which do not contain a single active principle and others whose active ingredients are difficult of isolation. Still others vary in the quantity of their activities, in different specimens which apparently have the same appearance botanically, to such an extent as to make pharmaceutical products prepared from them very different in their physiological action. The fact must be recalled that a difference in the supply of sunlight and moisture to a plant and variations in temperature and soil make extraordinary differences in the quantity of the active ingredients contained in the crude drug. It is therefore evident that very extraordinary possibilities for variation in effect may exist even in the most carefully prepared fluid extracts and tinctures which can be found upon the druggist's shelf. Those who have followed this matter closely know full well that fluid extracts and other preparations of crude drugs made from a given number of samples apparently identical in character and

by identical processes sometimes vary as much in strength as 100 per cent., and we have already mentioned an instance in these columns in which twenty drops of tincture of *nux vomica* was almost devoid of any physiological activity, while twenty drops of another tincture was four times as strong in the quantity of strychnine and brucine which it contained; yet in each instance the *nux vomica* beans from which the tinctures were prepared were in the eyes of competent examiners identical in their appearance and apparently of equally good quality. It is this variation in strength of alkaloids or active principles which is so often responsible for the production of excessive effects in susceptible individuals who have been ordered doses strictly within the line of those commonly employed, while on the other hand innumerable instances can be quoted in the practise of every physician where a drug has been given with the result that no physiological effect has been produced. Ordinarily this excessive action on the one hand, or failure of effect on the other, has been attributed to idiosyncrasy on the part of the patient, when in reality it should have been placed to the credit of the non-standardized galenical preparation. It seems therefore evident that physicians should always employ galenical preparations which contain a definite and known quantity of their active principles, if possible determined by quantitative chemical assay.

But it may be asked what test is to be applied to those drugs whose active principles are not readily analyzed, whose physiological activity depends upon volatile principles, upon glucosides difficult of isolation, or upon constituents which chemistry has as yet been unable to isolate accurately. The answer to such a question is that such remedies should come to the physician's hands having been tested by physiological means. Thus it is well known that ergot contains ingredients which on the one hand have a stimulant effect upon the uterus, while others have an influence upon the blood-vessels; and it is also known that ergot which apparently is the best that the market can provide frequently lacks these ingredients, with the result that the administration of the fluid extract made from such a crude drug is absolutely useless in combating those conditions in which this important drug is so often employed. Not only is this true of ergot, but *digitalis*, *strophanthus* and similar important remedies require a physiological

test before the physician can rest assured that a good result will follow their administration.

The paper of Dr. Houghton, which appeared in the July *GAZETTE*, is an interesting illustration of the benefits of physiological testing as applied to practical medication, and he tells us that recently a well known firm of manufacturing druggists rejected no less than 20,000 pounds of crude ergot, in appearance apparently A No. 1, which failed to produce proper physiological effects when samples of it were physiologically tested. For this reason this 20,000 pounds of ergot was not utilized by that house, yet in all probability the same 20,000 pounds has by this time been put upon the market by other manufacturers who are not in the habit of employing such a test for their crude drugs. Surely no one believes that this 20,000 pounds of ergot was cast into the sea! On the contrary, it has been cast into the stomachs of those unfortunate persons who needing its beneficial effect pay for something which they do not get and perhaps lose their lives through its failure to produce the necessary physiological effect.

The practise of medicine is necessarily surrounded by so many uncertainties which cannot be avoided, and the physician is so often disappointed in the results of his treatment, that it is his duty, as we have said earlier in this article, to eliminate every possibility of doubt in the treatment of his cases both because of humanity and his own personal advancement.

Until each individual member of the profession demands that the materials used in his practise shall be reliable a large amount of avoidable failure in treatment must ensue. What artist in his endeavor to make a reputation would use cheap colors or poor brushes? What surgeon would permit any doubt as to quality to rest upon the instruments which he employs in the performance of a delicate operation? and yet how many physicians face to face with desperate conditions daily employ drugs concerning which there is no certainty as to their action!

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#### THE TREATMENT OF PURULENT PERICARDITIS.

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The treatment of pericarditis with effusion has been discussed several times in the pages of the *THERAPEUTIC GAZETTE* during the years 1897 and 1898. In connection with

these articles a paper which has appeared in *The Lancet* of April 23, 1898, by Sevestre, is of considerable interest. His patient was a man of twenty-two years, who came under observation at the Addinbrookes Hospital in Cambridge, England, and who passed through a long illness which ultimately ended in his death. Although the symptoms of a pericarditis with effusion were not distinct, and although there were evidences, also, of there being a double empyema, an exploring needle was passed into the chest in the neighborhood of the heart and a syringeful of pus was withdrawn, this operation being followed by great relief. The patient, however, once more became dyspneic and apparently exceedingly ill, and upon the needle of the aspirator being passed into the pericardium twenty-three ounces of sweet, creamy pus were withdrawn, which proved to be almost a pure culture of the pneumococcus. The patient at once became markedly improved in his general condition, but once more relapsed after the lapse of a few days, so that finally a wound was made in the fourth interspace, and the director being pushed into the pericardium pus once more escaped. Later on an inch of the ninth rib posteriorly was excised and a large quantity of pus escaped from the chest wall on both sides, so that he speedily drained purulent material constantly from all three openings.

The value of Sevestre's paper, however, consists of the useful summary of cases of pericarditis which have been treated by operation, in all amounting to seventeen. In a number of instances the purulent pericarditis seemed to arise from the infection due to the pneumonia which ensued. In other instances he believes that it has arisen from the spread of the inflammatory process in the mediastinal glands, particularly where the mediastinal disease has been tubercular; and, further, he asserts that as the results of his studies it is by no means uncommon to find that the pleural cavities are involved, as they were in the case under his own observation. It is, however, of interest to note that in some of these cases the pleural effusion was serous, while that in the pericardium was purulent.

In discussing the locality in which a paracentesis pericardii should be performed, Sevestre points out that there is still a considerable difference of opinion, but believes in the majority of instances the fourth or fifth interspace on the left side of the sternum is the point of election. He also notes the fact that Rotch has advocated doing the

operation on the right side in the fifth interspace, but does not himself look with favor upon this proposition. Where the purulent pericarditis eventually points and finds an escape for itself, it is interesting to note that in one instance an abscess formed over the ensiform cartilage and was found post mortem to be connected by a sinus with the pericardium. In one instance the pus burrowed forward and down in the second left interspace close to the sternum. Finally Sevestre reminds us of the fact that Rosenstein with Leyden deserves the credit for being the first to incise and drain the pericardium, the patient entirely recovering.

Out of the seventeen cases tabulated by Sevestre, six are reported to have recovered; and, finally, it is evident from the statistics that incision of the pericardium has now been done a sufficient number of times to make it clear that it is not very difficult or dangerous, and it is certainly the operation to be performed when the otherwise hopeless character of the condition is recognized.

#### THE INFLUENCE OF QUININE IN LABOR.

The THERAPEUTIC GAZETTE during the past year has contained several items in regard to this question. In one of these a German authority claimed that quinine was a useful oxytocic. On the other hand, an original article contributed to the columns of the THERAPEUTIC GAZETTE by its editor, with the title of "The Value of Quinine as an Oxytocic," contained a large number of opinions derived from expert obstetricians showing that quinine did not possess marked oxytocic properties, and in one or two instances it was claimed that it was distinctly deleterious in its influence during parturition. In this connection, therefore, a recent paper by Dr. L. J. Hammond, of Philadelphia, read before the Philadelphia Obstetrical Society, and published in the *American Gynecological and Obstetrical Journal* for April, 1898, is of considerable interest. His paper is based upon one hundred cases of labor in which quinine was employed, the majority of the observations being made by advanced medical students under his direction.

Both primiparas and multiparas were used. In the case of the latter, an effort was made to determine the character and duration of the previous labors, but it was found to be so unsatisfactory that it was abandoned. The number of primiparas was thirty-eight, multiparas sixty-two.

There were never less than five nor more than seven observations recorded except in two or three cases, where four were made, owing to the rapidity of the termination of labor, and as so large an amount of time would be consumed in detailing these half-hour observations, the author has endeavored to summarize sufficiently to make clear the results of the investigations without too greatly wearing upon our patience, and with this object in view has endeavored to take the maximum number of seconds and the minimum number of seconds and the maximum minutes of interval and the minimum minutes of interval before the drug was given, and compare them with the maximum number of seconds and the minimum number of seconds and the maximum minutes of interval and the minimum minutes of interval after the drug was given. Usually from three to five observations were made before administration of the drug, no observation being made during the very last moments while the head was passing through the vulva.

The study of the action of the uterus after being emptied of its product of conception was to note, first, whether there was any excess of bleeding; second, whether firm contraction immediately occurred after it was emptied; third, whether any condition of hour-glass contraction took place.

As the report shows, but five evinced any tendency to excessive bleeding, and in no case was there any contraction of the lower segment noted. In all the rest the uterus promptly and permanently retracted after prompt expulsion of the placenta.

In but one of the cases was the temperature, pulse or respiration sufficiently disturbed from the normal course to be noteworthy, and that was in the third case in his table, which shows a pulse of 110, respirations slow (12), and temperature normal.

It is to be seen from the tabulated report of Dr. Hammond of the thirty-eight primiparas, thirty-five show an increase in the frequency of contractions after the administration of the drug, two show a decrease, and one no change.

We find upon further examination of the table that eight of these cases showed increase not exceeding one minute; therefore it will be fair to state that there was decided change in twenty-seven.

As to the duration of contraction, we find, of the thirty-eight primiparas, one decreased and two show no change. Of the sixty-two

multiparas, four show an increase in the interval between the contractions and but one shows no change, while twenty-seven show that the increase in the frequency of contractions did not exceed one minute. On the other hand, a study of the duration of the contractions shows that four of the sixty-two cases show a diminution in the duration of the contractions after the use of the drug, and in two no change was noted.

In comparing the frequency of contractions in multiparas with those of primiparas, we find that the interval between contractions is slightly longer in the former than in the latter, while on the whole the duration of contractions in multiparas is longer than that of the primiparas.

These observations were made on women living in courts and alleys, mostly in the extreme lower section of the city, where the sanitary conditions, as well as the foodstuffs used, were far below what is necessary for the safety and comforts of life. The district is said to be the most malarious in the city, and taken all in all, the writer believes this class of women to be an ideal one for securing the best results from any therapeutic agent whose benefits are supposed to be produced by its action as a tonic.

There is great difficulty in determining just what amount of the increase both in the duration and frequency of contractions that are noted in these observations is due to the action of quinine; first, because it is well known that as the second stage of labor progresses the interval between contractions is diminished, as well as the duration of the contractions increased. The prompt increase, however, in the duration of contraction and the diminution of the interval between contractions, which is so uniformly shown to have occurred in his series of cases, and in the hands of twenty-five different observers, would seem to justify the belief that this drug does exercise a marked influence on the expulsive powers of the uterus; and the writer is satisfied that, given a woman whose muscular system is below par and an atonic condition of all the muscular structures of the body, he believes the administration of quinine, begun in the early stage of labor, will not only increase the expulsive powers of the uterus by its general tonic action, but it will also, through this same action, tend greatly toward lessening the dangers of septic invasion, which this class of cases is particularly liable to, owing to this impoverished condition of the system. In other

words, it has been the writer's experience to find that uterine inertia, which is said by some to be so common, is extremely rare, and is found only in the class of cases that he has here described. From a large experience, both in this class and a better class of cases, he is convinced that the so-called uterine inertia does not exist in any other class of cases than that where all the other muscles are tired, or, more properly defined, where there is general muscular atony, and he thinks quinine is useful in labor.

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#### A BLUNDER OR A CRIME.

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"It is worse than a crime, it is a blunder."

—TALLEYRAND.

Those of us who are fond of history and literature will remember that Madame Roland as she was about to die exclaimed, "O, Liberty, Liberty, how many crimes are committed in thy name!" and we feel as if in these days it would be well to paraphrase this sentence by the substitution of the word *Science* for Liberty, for it is a fact that Behring and his agents have applied for and received patents which are designed to give him sole control of the manufacture of the antitoxin of diphtheria. For years the original investigators of the German laboratories have deserved and received the admiration and respect of the scientific world because of their devotion to science for its own sake. For years the great teaching institutions of the world have sent their best young men to the German universities in order that they might receive that spirit of scientific ardor which, like the touch of the king's sword, raised the servitor to knighthood, and this self-sacrificing spirit was perhaps the most important part of the benefit of a foreign trip. The rank commercialism of the present day has, however, entered those institutions of learning which have heretofore been above reproach, and we find that Behring's scientific reputation is to be shadowed by venality and greed.

This, however, is the least important part of this subject, and the scientific investigations of other equally reliable, and more ethical, men, which have led to the possibility of Behring's work, are to be used as stepping-stones for his benefit. Far more important is the question as to what influence the success of this application for a patent will have upon the lives of many hundreds of patients in the course of every year. Had

equal commercialism governed Jenner, how many thousands of individuals would have died of smallpox, and what would have been the effect upon the universal limitation of the disease to-day had such an ethical error been perpetrated? Even though the life of the patent would have lasted but a few years, incalculable harm would have ensued.

So far it has been taken for granted, in part at least, that Behring has a legal right to this product. This is not the case. Others had utilized the same principle years before he did so, and the literature of medicine teems with the papers of those who are in great part his leaders in the discovery of diphtheria antitoxin. Nor is this all, for his rights are so uncertain that other governments will not issue protective papers to his monopoly, and only our lax American laws permit him to obtain a patent.

There are times when the physician must, like our New England forefathers, leave the ploughshare of practise for the fight, and this is one of them, for it is a struggle of the rich and the poor against a terrible scourge and a strong monopoly, and the voice of the medical profession should be raised in no uncertain tone against this outrageous instance of grasping greed. Such greed often overreaches itself, and the profession should remember that the Höchst Farbwerke, formerly Meister, Lucius & Brünig, who are the active agents in this matter, are dependent in large degree upon the favor of physicians. "To what base uses have we come at last" if we can be used by such persons as the tools by which their dividends are paid? And are we as citizens of this great country and members of an equally great profession to sit quietly by while our scientific birthright is taken from us? *Caveat emptor*, let the buyer beware, of those who seek to practise the imposition.

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#### THE IMPORTANCE OF OUR FOREIGN LETTERS.

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This issue of the THERAPEUTIC GAZETTE contains two foreign letters in particular, namely, those from Berlin and Paris, which illustrate an important function of the THERAPEUTIC GAZETTE in disseminating information in regard to the best treatment of disease. The Berlin letter records in an interesting way the opinions of Professor Koch as a result of his study of infectious diseases during his recent visit to Africa, and we are

particularly interested in his assertion that in a large number of instances the excessive use of quinine is responsible for the development of black-water fever, or malarial hematuria. This is a matter with which the readers of the GAZETTE are already familiar, for during the seven years in which the present editor has had charge of its columns a number of important original, editorial, and progress items have been published on this subject. These statements of Koch's, coming from such a high authority, are worthy of much attention; but it will be remembered that many Grecian and other physicians on the other side of the Atlantic have long held to this view, and that in the collective investigation of malarial hematuria made by the editor of the GAZETTE a few years ago similar conclusions were discussed. Another important point in this letter is the question of the administration of large quantities of mercurials in the treatment of advanced nervous lesions of old syphilis. We are speedily learning that drugs that are powerful for good when properly used are also powerful for harm. Much interest also attaches to the *résumé* of the views of Laugen-hagen, of Cannes, concerning the treatment of muco-membranous enteritis, which will be found in the Paris letter.

The Correspondence department is maintained under a large expenditure, but we think the information obtained by our readers from these letters is a valuable addition to the GAZETTE, which is and should be universally appreciated.

#### TUBERCULOSIS OF THE TESTICLE.

Tuberculosis of the testicle does not, at least in current journalism, receive the attention which its comparative frequency, its diagnostic obscurity in its early and most amenable stages, and its important bearing on the general health would seem to warrant. The etiology, pathology, prognosis and treatment of the affection still remain to be settled, and certainly the experience of every surgeon is to the effect that the disease is usually well advanced before special treatment is sought.

The means by which the tubercular infection reaches the testicle are of course those by which the bacilli are carried to any point of the body. From the mass of clinical evidence it seems clear that this infection is usually a descending one from the prostate, that tuberculous epididymitis and orchitis

are commonly complicated by latent or active prostatitis—often by infection of the bladder and kidneys, sometimes by tubercular lesion in remote parts of the body—and that in a fair proportion of cases the affection is an absolutely local one, the other organs being healthy. It may develop at any age, records having been published of infants and octogenarians being afflicted with this disease, but it is commonest at the period of lustiest life—*i.e.*, early manhood.

The normal testicle has toward the tubercle bacillus marked resistant powers, if Jacks' observations can be trusted. These are to the effect that a tuberculous patient may secrete through a healthy testicle semen containing virulent tubercle bacilli. The favoring condition for the lodgment and growth of these bacilli is lessened resistance usually incident to gonorrheal inflammation, trauma, or physiological congestion. The latter is a factor of very great importance. The affection is commonly bilateral (seventy-five per cent.), but rarely so synchronously. The disease may remain in one testis or epididymis for weeks or months before the other becomes affected. Under such circumstances it is possible that the prostatic affection may be secondary to that of the testicle, but more probable that it was primary. The onset of the disease is sometimes as sudden and violent as is that of a gonorrheal epididymitis. The partial subsidence is rapid in these cases. As a rule the onset is insidious, and with inflammatory symptoms or only slight ones; nodulations form in the epididymis, often about its upper portion first, but frequently in exactly the position characteristic of the induration following gonorrheal inflammation.

Preceding or accompanying these insidious cases there is often observed a slight intermittent gleet discharge, some frequency in urination, blood at the end of micturition, pus in the urine; a rectal examination will often show nodulation of the seminal vesicle or the prostate of the affected side. This slight gleet leads to error in diagnosis, the physician taking it for granted that a urethral discharge is necessarily of venereal origin. The nodulation in the epididymis may be the only sign of the affection, the genito-urinary tract remaining clean and the urine showing nothing abnormal on repeated examination. This is not commonly a reason for the conflicting views expressed as to the treatment appropriate to tuberculosis of the testes, and is to be found in the fact that

the disease exhibits a marked tendency to remain localized for a long period. There are many spontaneous cures reported. Tubercular involvement of any portion of the genito-urinary tract is commonly slow in its development. If the affection were invariably rapid, progressive, and as a rule became disseminated, the advisability of early extirpation would so generally be recognized that but few words would have to be said as to treatment. As it is, the majority of surgeons advocate immediate partial or complete castration as soon as the diagnosis of tuberculosis of the testicle is clearly established. Theoretically this seems objectionable, because of the apparently well established fact that the involvement of the testicle is generally secondary to foci of disease in the prostate, and that unless a vasectomy and prostatectomy are performed in addition to removing the testes the patient is ultimately not likely to be benefited. As a matter of clinical experience, however, it has been shown repeatedly that after removal of a diseased testis and cord the infiltration distinctly perceptible on rectal palpation has subsided and a permanent cure has been accomplished. R. Koenig reports many such cases.

There is, however, a natural hesitation in advising even a unilateral castration when there is even a hope of saving the organ, a hesitation which unfortunately does not obtain in the consideration of the affections of the ovary. Moreover, men are exceedingly reluctant to have this operation performed, and if they can be told that even a small percentage of cases recover without it, are prone to take these chances.

The statistics of tubercular epididymitis and orchitis treated by non-operative means remain to be taken, but it is noteworthy that a surgeon as experienced and modern as Guyon counsels many of his patients to adopt those hygienic and climatic measures which have yielded such good results in pulmonary consumption and which have given him a large percentage of apparent cures.

The advantages proven for operation are: That it at once removes a focus of infection and of possible dissemination, and this by a simple and safe procedure; that it removes an organ the physiological activity of which is already destroyed; that it exerts a distinctly modifying effect upon tuberculous infection of the prostate and tubercular cystitis; that in the distinctly localized cases it is absolutely curative. All these advantages seem to be shared by thorough removal of the

tuberculous foci, leaving as much of the testicle as seems healthy. When the disease is bilateral this procedure would seem particularly to be indicated, because of the systemic influence of testicular tissues and because of the excellent results following it. The method is one which is steadily growing in favor.

When a tuberculous testis first comes under observation the first thought should not be to suggest operation. The effect of pressure, elevation and moist heat should first be tried. This is best applied by a shallow suspensory bandage made of mackintosh and gored at the sides and provided with lacings. The testicles are covered in by a layer of absorbent cotton, the suspensory is applied, drawn well up by the perineal shape and finally laced at the sides. The patient should at the same time be placed under the most favorable hygienic conditions. If the disease is progressive the infiltrated foci should be removed with the curette or knife; if the major part of the testes is involved complete castration is indicated, even though there be evidences of prostatic, vesical, or renal involvement. It is worthy of note that even patients presenting all the cardinal symptoms of renal tuberculosis may recover.

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## Reports on Therapeutic Progress

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### *PULMONARY EMBOLISM FOLLOWING MERCURIAL INJECTIONS.*

According to EPSTEIN the treatment of syphilis by injections of insoluble mercurial preparations presents, in a large number of cases, an incontestable superiority over other methods, and the practise should not be renounced unless the complications on the part of the lungs produced by embolism are frequent and grave.

From 1892 to 1896, under the direction of Dr. Jadassohn, in Breslau, 227 men and 681 women were treated with injections of insoluble mercurial preparations. In all, 8292 injections were made, ordinarily with thymol, mercury acetate, or mercury salicylate in liquid paraffin. Among these patients embolisms were ascertained as follows: In 1752 injections in men; in 1090 injections in women; and in 1185 injections in persons of both sexes.

No deaths occurred in the cases of embolism; furthermore, all the patients were cured in a short time. The author does not concur in the opinion lately expressed several times



in favor of rejecting injections of insoluble mercurial salts solely because they may accidentally give rise to pulmonary embolism. He is, in this respect, in complete accord with the majority, not only of German physicians, but of other physicians.

According to Möller, the following rules should be carried out in order to avoid an injection into a vein and consequent pulmonary embolism: At first, the mass to be injected should be deposited in the gluteal region and as deep as possible, so that the injection is made above the muscles or in the superficial part of the gluteus. The upper gluteal region, above the horizontal line which touches the upper part of the great trochanter, presents the least danger from embolism. Möller seizes a thick fold of the skin and of the subcutaneous tissue parallel with the median line and introduces the cannula (which should be at least three and a half centimeters long) for its entire length, following an oblique line in the direction of the fold of the skin and deep into the skin and the subcutaneous tissue in order that the injection may stop short of the muscle, or at least touch only the superficial part of it.—*New York Medical Journal*.

#### REPORT ON THE PROGRESS OF SERUM THERAPY IN GENERAL—IN VIRGINIA ESPECIALLY.

A committee of the Richmond Academy of Medicine and Surgery reports in the *Virginia Medical Monthly* of February 11, 1898, its conclusions in regard to this subject. An exhaustive report concludes as follows:

Antitoxin is the most valuable remedy yet devised in the treatment of diphtheria.

Its use is especially valuable in laryngeal cases.

It should be employed at the earliest possible moment after a diagnosis is made.

The initial dose should be (according to the type and severity of the case) from 1000 to 3000 units of a concentrated serum, and should be repeated according to indications.

Local and other general treatment should not be neglected because antitoxin is used.

As a prophylactic agent its value is unquestioned.

#### INHALATIONS OF VINEGAR TO CONTROL NAUSEA AND VOMITING AFTER ANESTHESIA.

The *Philadelphia Polyclinic* of February 26, 1898, contains an article on this subject by Dr. J. T. RUGH in which he tells us that

many and varied are the methods proposed and used to overcome this disagreeable and frequently serious symptom, but all have proved only partially successful. In one of the Boston hospitals the injection of atropine prior to beginning the anesthetic was followed very carefully and for a long time on the principle that it would stimulate the inhibitory vomiting center which was supposed to be paralyzed during complete anesthesia, which fact may be but one of the causes acting rather infrequently, but its use was only partially successful. The combination of morphine and atropine has been used but has not been found satisfactory. Bromide, chloral and other antispasmodics have also been administered with a varying degree of success.

One of the simplest and most satisfactory methods of controlling this condition has been the administration of strong vinegar by inhalation. The use of vinegar in this manner for vomiting was first proposed in 1829 and was practised from time to time by various surgeons, but it remained for Mackenrodt to apply it extensively for vomiting following anesthesia, he probably having adopted it from the recommendations of earlier surgeons who lived in both the pre- and post-anesthetic days. Its beneficent action is explained by Lewin as due to the neutralization of the free chlorine, one of the products of chloroform, by the acetic acid. The chlorine acts as a marked irritant to the pharyngeal mucous membrane and induces vomiting, but it is neutralized by the acid, which soothes the irritated parts as well. Ether, however, is much more directly irritating to the respiratory passages during inhalation, but the vinegar gives as satisfactory results after it as after chloroform narcosis. The simplest explanation of its good effects is that its pungency stimulates—it being too dilute to exert any irritative action—the respiratory mucous membrane, promotes the normal secretions and, by its soothing action upon the peripheral nerves of the parts, lessens the irritability of the pneumogastric or its centers, and the reflex condition of vomiting is controlled. Furthermore, that vinegar is a restorative and soothing stimulant to the respiratory tract and to the nervous system is well attested by its wide-spread use among the ladies in their vinaigrettes in place of "smelling salts." In certain countries the pungent qualities of the aromatic vinegar are used almost to the exclusion of the ammonia or lavender salts, and all be-

cause of the more refreshing effects following its use.

Whatever the correct explanation may be, certain it is that, in cases which have been properly prepared for operation and whose stomachs have not been filled with blood during the operation, it almost, if not completely, prevents vomiting. The method of administration is by saturating a towel or cloth with fresh, strong vinegar (preferably that made from cider), and holding it a few inches above the patient's face, or hanging it from the bedstead, so that it will be near his head. It should be used directly after the anesthetic has been discontinued, and kept up continuously for hours.

In one case, to which ether had been given, nausea began soon, but ceased in about one and a half minutes after using the vinegar. This was then removed, and the nausea returned, but again disappeared after the vinegar was given. The action was so marked that the process was repeated five or six times so as to verify the conclusions, and each time the result was the same as at first noted, the patient quickly becoming quiet as though going under complete anesthesia.

Another case was given chloroform for the removal of pharyngeal growths and swallowed considerable blood. Vomiting of the clotted blood occurred, but ceased immediately after, and did not return.

These have been duplicated by about twenty-five cases, in whom the action was almost uniformly beneficial. The relief from thirst to the patient is most marked, and the refreshing effect is both grateful and welcome to the sufferer. Its simplicity and efficiency commend its use to all having aught to do with such cases. It is also free from any toxic effects, and can occasion no harmful conditions.

**FOR WHAT PERIOD OF TIME CAN IMMUNITY FROM DIPHTHERIA BE CONFERRED BY A SINGLE INJECTION OF ANTITOXIN?—THE DOSAGE.**

This question is asked and answered as follows by MORRILL in the *Boston Medical and Surgical Journal* of March 3, 1898. From actual experience he states that we are perfectly justified in believing:

That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100 to 250 units) of serum, provided it is given twenty-four hours previous to actual infection.

That a larger dose (250 units for a child of two, up to 500 units for one of eight or over) will confer safety for three weeks—or to be a little more conservative, for twenty days—under similar conditions.

That no harm will result from the treatment in a vast majority of cases of sick children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

In conclusion any one who thinks that antitoxin will prevent the occurrence of a follicular tonsillitis or of a coryza in an individual who happens to have the Klebs-Loeffler bacillus in his throat or nose will be disappointed, for neither of these conditions constitutes a diphtheria any more than the coexistence of the pneumococcus in the saliva or a bronchitis constitutes a frank pneumonia. A physician who fails to promptly immunize the members of a family or close community in which diphtheria breaks out, neglects to do his duty by those whose safety lies in his hands.

**CANCER OF THE SKIN.**

Dr. GOTTHEIL writes on the treatment of this state in the *International Journal of Surgery* for March, 1898. He says that among the arsenical pastes are those of Cosme, Esmarch, and Bougard. Cosme's paste, as modified by Hebra, consists of:

- ℞ Acid. arsenosi, 1 part;  
Hydrarg. sulphuret. rub., 5 parts;  
Ungt. aqua rosæ, 40 parts.

It is applied like that of Marsden, but, being weaker, should be removed every twenty-four hours, the parts washed, and the paste reapplied. This formula is not as desirable as that of Marsden. Its weakness causes danger of its absorption, and it does not produce the requisite inflammatory reaction.

Esmarch recommends the following paste:

- ℞ Acid. arsenosi, 1 part;  
Morph. sulphat., 1 part;  
Calomel, 8 parts;  
Pulv. acaciæ, 48 parts.

It is open to the same objections as the paste of Cosme, and is but little used in this country.

Bougard's paste is active enough, but it must be used with caution, as it is liable to destroy the healthy as well as the pathological tissue. Its formula is as follows:

- ℞ Hydrarg. chlor. corros., 1 part;  
Acid. arsenosi, 2 parts;  
Hydrarg. sulphuret. rubr.,  
Ammon. chloridi, of each 10 parts;  
Farini trit.,  
Amyli,  
Zinci chlorid. cryst., of each 120 parts.

The various ingredients should be powdered separately, mixed in a mortar, and poured into the solution of chloride of zinc with rapid stirring to prevent lumping. The paste is applied on a cloth immediately after the preliminary curetting, and is allowed to remain on for twenty-four hours. The poulticing and after-treatment is similar to that after Marsden's paste.

A mixture of arsenous acid with alcohol and water has been used with great success by Czerny and Trunecek. The formula is as follows:

℞ Acid. arsenosi, 1 part;  
Spts. vini rect.,  
Aqueæ destill., of each 75 parts.

After a preliminary curetting, or at least a thorough cleansing of the surface of the ulcer, the arsenical mixture, well shaken, is spread over it with a brush. It is allowed to dry on and the part is left without any dressing. Next day the ulcer is found covered with a scab. Every day a new layer of the application is painted on, and the crust, gradually thickening, slowly changes in color from yellow through brown to black. The strength of the solution should be gradually increased during the later applications, until the proportion of arsenic in the mixture is 1 to 100 or even 1 to 80. The scab, composed of necrotic cancerous tissue, gradually becomes detached by suppuration, and can finally be removed. The arsenical mixture is again applied and the result watched. If a thin, easily detachable, yellow pellicle only is formed, it is claimed that the cancerous matter is all destroyed and the ulcer will heal up. If, however, a dark colored, tough and firmly adherent crust appears, the reverse is the case, and the entire course of treatment must be repeated.

Treatment lasts from four weeks to three months. Objections to the method are the length of time required, and the fact that daily applications are necessary. Advantages are its comparative painlessness, the possibility of treating large areas of cancerous tissue at once, and more especially its applicability to carcinomata of the skin involving the mucosæ, or situated upon the mucous membranes themselves. Its authors claim that the treatment does not affect the organism even when employed in the mouth.

Finally, Hue has used arsenous acid hypodermically, employing the following formula:

℞ Acid. arsenosi, 1 part;  
Cocain. hydrochlor., 5 parts;  
Aqueæ destil. bulliens, 500 parts.

Several cubic centimeters are to be injected every three or four days into the cancerous tissue; it is claimed that the operation is not painful. Though his recoveries were only called "relative," and his cases all inoperable ones, the hypodermic injection of arsenous acid may be found useful in cases of cancer situated upon the mucous surfaces or in localities where the applications above mentioned cannot be used.

Cutaneous carcinoma is preferably treated, in the great majority of cases, by caustics, which give the best results with the least liability to return.

Excision is to be reserved for those exceptional cases in which, from location or extent, the caustic treatment is inapplicable.

Arsenous acid is the safest, surest and best of the caustics at our disposal, and seems to have a specific selective action upon the cells of the new growth. Pyrogallol may be employed in the most superficial cases.

In cases involving the skin alone, arsenic should be used, after curetting, in the form of Marsden's paste.

Where the mucosæ are also or solely affected, arsenic can be used by the method of interstitial injection of Hue, or as a paint, as recommended by Czerny and Trunecek. The galvanocautic point, the caustic potash stick and the chloride of zinc may also be employed.

Cutaneous carcinoma, early and vigorously treated by the caustic method, is a very manageable disease, and of good prognosis.

#### COMPARATIVE TREATMENT OF DIPHTHERIA; CASES IN PRACTISE.

KILLINGSWORTH in the *Western Medical Review* of March 15, 1898, tells us that he visited with Dr. Von Grimm, when in New York City, twelve cases of diphtheria, of different severity. Once a day they were all treated with antitoxin, and not a death occurred when the antitoxin was used in the first twelve hours of the disease. There was a characteristic rash that appeared in four per cent. of the cases that he has treated and seen treated. He thinks the rash is due to the horse serum, and not to the antitoxin. Antitoxin does not prevent albuminuria if not administered in the first six hours of the disease, and the paralysis appears after the antitoxin seems to have cured the diphtheria. Aside from these unfavorable complications in the late administration, antitoxin holds second place only to vaccination for prevent-

ing smallpox. Statistics in the greatest number of cases and from the most different sources have proven its worth, for nearly four years' employment of antitoxin in diphtheria has resulted in the saving of thousands of lives. Every claim that has been put forward for antitoxin has stood the test. Results from this treatment have been published by the hundreds. The testimony has been from the best men and of such high standing that the results can no longer be called into question by any one. It is simply the imperative duty of every physician to use the serum early in every case of diphtheria. The author says if he did not see a case early, say in the first twelve hours, he would use the antitoxin with the spray of chloral hydrate, potassium permanganate, and hydrochloric acid, with internal treatment as was indicated in each case.

#### *PRACTICAL MEASURES IN OBSTETRICAL EMERGENCIES.*

MARX in the *New York Medical Journal* of February 5, 1898, says that many men speak of frequent post-partum hemorrhages. He thinks these either denote faulty technique on their part, or else they call every bleeding a true post-partum hemorrhage. He speaks of these hemorrhages as those where in a few moments from perfect health, in good spirits, the woman lies cold, collapsed, gasping for breath, with sighing, yawning, and all those symptoms which we all recognize too well as soul-stirring and marrow-freezing. There may be no external hemorrhage, but the large, relaxed, boggy uterus tells the story but too well. Quick, precise action is required. No theoretical measures are to be thought of. Means that have stood the test of time must be used, and used at once, to bring on firm and good uterine contraction. The writer has thrown aside everything but one of two measures. He countenances but one hot intra-uterine douche, and if this procedure does not bring about the desired result, he does not use irrelevant and dangerous measures, such as direct compression, ice, persulphate of iron, lemon, vinegar, etc., *ad infinitum*, but proceeds to pack the uterus with gauze, toweling, or anything he has on hand. He never goes to a case without five yards of gauze being on hand. This is a surgical means of controlling hemorrhage. The technique of gauze tamponade is simple: one hand over the uterus, while with the other the gauze is shoved in, as it were, until no more can be introduced. So

long as this gauze remains, bleeding cannot occur, for it acts mechanically in controlling the bleeding and actively stimulates the uterus to contraction.

The after-treatment is simple: Postural treatment and stimulation by the needle, with large doses of strychnine given at short intervals; infusion of a saline solution, for the heart needs a fluid, not necessarily blood, to act upon. Intravenous transfusion is difficult of application in those cases, for the veins are so small, so collapsed, that to find them is not only difficult, but valuable time is lost. Hypodermoclysis is all right if the needle and Davidson syringe are at hand, when a pint may be injected under each breast. But we have in the colon an avenue which greedily absorbs about all the fluid we can inject. The tube of a fountain syringe is slowly wormed two feet into the bowel and the salt water allowed to run in, at the same time elevating the buttocks to allow the force of gravity to act in getting in the fluid higher and higher. It is remarkable how much fluid a colon will absorb under these conditions, and how little is expelled. The author had one case where one pint was injected every hour for twenty-four hours with most brilliant results. The water should be hot, and it would not be amiss to add to the salt solution strong coffee, or liberal doses of cognac or whiskey. Ergot is of little value in these cases when given by mouth, for Hemmeter has shown that it takes at least a quarter of an hour to act. As an adjuvant, ergot (or "ergot aseptic") might be given hypodermically, but deep into the outer side of the thigh.

Hemorrhage from the cervix, while not so fatal in its immediate action, can in a relatively short time exsanguinate a patient. Its causes and prophylaxis do not enter into discussion in this paper. The diagnosis is simple enough, if in the presence of a well contracted uterus hemorrhage from the vagina and vulva can be excluded. Its treatment is self-evident, but by what means? Powerful traction from below by bullet forceps or pressure from above, both causing an artificial prolapse of the organ, has in his hands, by putting the uterine arteries on the stretch, caused a cessation of the hemorrhage. Direct pressure for ten minutes, the thumb and index-finger of one hand directly grasping the angle of the tear, has answered in others; or, to the same end, clamps inserted well above the angle of laceration. Further surgical measures would be the firm utero-

vaginal tamponade. These are the varieties of treatment when direct suture and needle are not on hand. The writer only advocates primary trachelorrhaphy in the presence of hemorrhage, and not, as many have advocated, in all cases of laceration. The universal application of sutures is condemned for the reason that if the accoucheur has been surgically clean deep tears will in the largest number of cases heal spontaneously. If the rent is sewed up and strict cleanliness is not observed, sepsis will arise and union not occur. The author speaks of a case where the physician sewed so thoroughly that the entire uterine canal was closed and not a drop of lochia could escape. But in the presence of cervical hemorrhage we recognize the only condition for the primary operation. In itself the operation is simple. Place the woman on the back, artificially prolapsing the uterus by direct pressure, or pulling down the cervix to and through the vulva—in other words, delivering the cervix into the world—passing as many sutures as are required, and tying them tightly; for, since we are operating upon a uterus which will rapidly involute, in which the parts are congested and swollen, bleeding might occur or the wound gape from ligatures that in this wise become loose from not being tied tightly enough.

Following this technique, it is as easy to sew up a rent cervix as it is to operate upon the peritoneum. Hemorrhage from the vagina is rare, and requires simple suturing. Spouting from the clitoris, while apparently a simple matter to treat, is one which has puzzled the writer in finding the source of the hemorrhage. Direct pressure, or a suture passed beneath the bleeding vessel, will readily control the condition.

#### TREATMENT OF TABES.

EULENBURG (*Deutsche Medicinische Wochenschrift*, Oct. 28, 1897) first refers to the new conception of tabes as a disease of the sensory neuron. At first the treatment of tabes was looked upon as useless. As regards prognosis each case must be individualized. Besides pursuing at one time a more rapid and at another time a slower course, the disease may become stationary even in its earlier stages, so that a relative recovery may be spoken of. This arrest of the disease may give rise to error in estimating the value of a given treatment. Nothing is expected nowadays from derivative and

revulsive measures, and the same may be said of the silver treatment. The improvement that may take place under treatment by electricity, by baths, and by the local application of heat or cold, cannot be satisfactorily explained. The value of antisyphilitic treatment is difficult to estimate. The author agrees that a large percentage of sufferers from tabes have previously had syphilis, but syphilis is not the sole or essential cause of the disease. Thus antisyphilitic treatment cannot be described as a radical treatment. Relative recovery is not more common under antisyphilitic treatment than under other methods. Cases of tabes with previous syphilis may improve with or without antisyphilitic treatment. Harm may sometimes be done by injudicious antisyphilitic treatment. Eulenburg emphasizes the value of morphine and strychnine under certain circumstances in this disease. Potassic iodide, antipyrin, antifebrin, etc., are of uncertain value in the pains of locomotor ataxia. As regards so-called organotherapy, treatment by spinal cord extract and by Brown-Sequard's fluid has been tried. The author says that he has used spermin in subcutaneous injection in bad cases with considerable improvement. Nerve stretching ought never to be resorted to. Suspension, etc., may produce improvement, especially in the ataxia. The author speaks highly of Frenkel's treatment of ataxia by compensatory exercises. Thus the ability to work may be preserved or even recovered. The question of sending patients to health resorts is next discussed; it must, of course, largely depend on the means of the patient.—*British Medical Journal*, Feb. 26, 1898.

#### PICRIC ACID IN ECZEMA.

AUBERT (*Thèse de Paris*, No. 32, 1897) says that speaking generally picric acid is indicated in those forms of eczema in which the inflammation is acute and superficial, and where the lesions are mostly epidemic. The keratoplastic action of the remedy cannot display itself in the chronic forms of eczema accompanied by induration of the skin and particularly by epidermic thickening; picric acid is incapable of modifying these chronic lichenoid eczemas. On the other hand, the keratogenic properties of the agent find an excellent field of action in acute eczemas with swelling of the integument, superficial ulceration, and weeping. Under its influence the inflammation rapidly subsides, and the acid

forms on contact with the ulcerated and oozing surfaces a protective layer composed of coagulated proteid substances and of epithelial débris under which healing takes place rapidly. Picric acid has the further advantage that it immediately stops itching; this effect is produced in chronic as well as acute forms of the disease. In acute eczema a cure is effected in from ten to fifteen days. The method of use is as follows: A solution of twelve grammes of picric acid in one liter of tepid boiling water is painted over and somewhat beyond the affected surfaces; the parts are then wrapped in lint wrung out of the same solution, and over this is placed a covering of cotton-wool. It is important that oiled silk should not be used, otherwise maceration of the surface is pretty certain to occur. The dressing should be renewed every two or three days. Brousse recommends that before the picric acid is applied the cutaneous surface should be washed with a solution of boric acid.—*British Medical Journal*, Feb. 26, 1898.

#### MAGNESIUM SULPHATE IN TROPICAL DYSENTERY.

In a brief note to the *British Medical Journal* of February 26, 1898, THORPE extols the usefulness of this drug in dysentery. He asserts that the value of magnesium sulphate in dysentery does not appear to be generally known, judging from the scanty reference to it in the text-books, but he indorses Dr. Wyatt-Smith's experience of it from his own. In two cases under the author's care on board Her Majesty's gunboat *Peacock*, then lying in the Yang-tse-Kiang River, China, five years ago, one was treated with ipecacuanha, and eventually died in the Shanghai hospital with extensive gangrenous ulceration of the bowel; the other was given drachm doses of a saturated solution of Epsom salts, in combination with ten minims of dilute sulphuric acid, every hour, as described in *The Lancet* of October 4, 1890, and recovered without a single complication.

So striking and immediate was the effect of magnesium sulphate on the symptoms, that in any future case of dysentery the writer states he will give it first trial, before resorting to ipecacuanha with its uncertain action. Considering the number of cases which occur in the ships of the Royal Navy serving on the coasts of China and the East Indies, he thinks that this method of treating the disease should be more widely known.

Wiglesworth states that he was much interested in the memorandum communicated by Dr. Wyatt-Smith in the *British Medical Journal* of January 29 on the treatment of tropical dysentery by magnesium sulphate, as he can fully corroborate all his statements. For several years in Nicaragua, Central America, he treated dysentery with ipecacuanha, and notwithstanding its vaunted efficacy he cannot say that he knows of one single case which derived much benefit from it. The "text-books" say that a patient suffering from dysentery can retain large doses of ipecacuanha in a remarkable manner; but in his experience this is far from being correct, although anti-emetics were in all cases given previous to its administration. It was not until he read in a medical paper the treatment of dysentery by magnesium sulphate and dilute sulphuric acid that he had any success. He then gave half-ounce doses of a saturated solution of magnesium sulphate and fifteen minims of dilute sulphuric acid every two hours, with milk diet, and in the words of Dr. Wyatt-Smith it "acted like magic." In most cases pain and all traces of blood disappeared from the stools in twenty-four hours, and there was of course a complete absence of the distressing nausea which is always present in the treatment by ipecacuanha.

If the magnesium sulphate treatment were carried out, in the majority of cases tropical dysentery would be shorn of half of its terrors.

#### PNEUMONIA IN PRIVATE PRACTISE.

M. HOWARD FUSSELL writes under this title in the *Medical News* of March 5, 1898. He points out that in a disease in which, in fully one-half of all cases, treatment is apparently ineffectual, and in which recovery is frequent even when treatment is not attempted, the cases not being seen by a physician, one must speak of the value of remedial measures with great diffidence, especially as regards drugs. Much good may be accomplished by proper treatment, and it is criminal to permit a patient with pneumonia to be wholly without treatment, but the author believes that the administration of drugs or the use of local applications have absolutely no effect upon the course of this disease. In his opinion proper treatment consists of rest and care of the heart. Rest is certainly the most essential point in treatment. In a case the writer details, the

patient was doing well; there was no sign of collapse. He saw her at 10 A.M., at which time the temperature was normal and the pulse slow and steady. She arose from her bed, walked around the room, and within two hours was dead from failure of the circulation.

Another case, seen in consultation, in which resolution was progressing nicely, the temperature normal, the patient had violent post-febrile delirium. The action of her heart, which had previously been good, became rapid and irregular. A few hours' rest, obtained by means of morphine, caused the heart's action to become regular, and the patient is now well on the way to recovery.

Rest should be as absolute as possible. The patient should not be allowed to rise to have a movement of the bowels, but should use the bedpan. If delirium is present, a hypodermic injection of morphine should be given. The author states that he once acted as nurse for a noted homeopathic physician who could not be restrained in bed; he was maniacal, attempting to climb out of the window, etc. His pulse was very rapid. A hypodermic injection of one-eighth of a grain of morphine put him to sleep; his pulse fell to 100 and was for the time much improved in quality. A consultation of his homeopathic attendants resulted in detention in bed by physical force. The delirium continued, and the patient finally died.

The next most important part of treatment is care of the heart, in regard to which rest is, of course, the prophylactic measure. When, in spite of absolute rest, the heart begins to fail, strychnine, digitalis and whiskey must be used. Strychnine, given hypodermically, will frequently abort a threatened collapse and carry the heart over a critical period. It has been said that such treatment is not rational, because it is but a whip to the jaded horse. That it is a whip is true, but if the tired heart can be made to make an extra effort and pull the load over the last acclivity it may be all that is necessary to insure recovery. In all cases of impending heart failure Fussell gives strychnine hypodermically in one-twentieth grain doses every three hours. Its value was well illustrated in one of the writer's cases, a man aged forty-seven years, with double pneumonia and moderate fever, who progressed nicely until the sixth day. The heart's action then became rapid and the respirations reached the extraordinary rate of seventy per minute. This condition continued from 7 A.M. until midnight.

For some unknown reason strychnine had not been used, though oxygen, digitalis and whiskey had been employed to the fullest extent. At 8 A.M. a hypodermic injection of one-twentieth of a grain of strychnine was given, and was followed by some relief. It was repeated at 10 P.M. and also at midnight. By 2 A.M. the respirations had fallen to fifty, and from this time on convalescence was rapid. Digitalis and whiskey are valuable agents in pneumonia, but in an emergency their action is not to be compared with that of strychnine.

The author has never employed venesection in pneumonia. In one case it seemed to be demanded, but was refused. With aconite and veratrum viride he has had no experience, having always been afraid to use them.

In all of the author's first cases of pneumonia a jacket poultice was employed. It was troublesome, unclean, and uncomfortable, and except under certain conditions was soon discarded. Where there is much pain, and consequent embarrassment of breathing, the application of a poultice which envelops the whole chest affords such immediate and striking relief that its use seems justified.

When pain is severe, a small hot poultice over the affected area will give relief. Cotton jackets he still uses, knowing that they accomplish little or nothing except perhaps to quiet the minds of the patient and friends.

A cold bath when the temperature is high gives the greatest relief, and under its influence a delirious patient will frequently go quietly to sleep. In one of his cases, in which the patient died with a temperature of 107° F., he believes the fatal termination might have been prevented by the application of cold.

Local applications of ice to the affected side are theoretically correct. They certainly relieve pain, but his own experience with them has not been encouraging. He still employs them when there is a tendency to hyperpyrexia.

The pain, which is frequently the most annoying symptom, can best be relieved by the application of ice, a poultice, by means of cups, and, lastly, by the administration of opiates.

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*THE SYMPTOMATOLOGY AND TREATMENT OF THE COMMON CLINICAL FORMS OF LITHEMIA.*

The *Medical Record* of March 26, 1898, contains an article by BARNES upon this sub-

ject. In the section dealing with treatment he expresses the belief that the treatment of lithemia is generally very satisfactory, both in avoiding the distressing paroxysms and in securing freedom from the symptoms more or less constantly present. The two cardinal rules which sum up the whole subject are: eliminate the toxic agents which cause the symptoms, and avoid nitrogenous food, from the metabolism of which the toxic agents result. It is often a matter of considerable difficulty to feed lithemics properly, because generally a complete change in diet is necessary, and the monotony of non-nitrogenous food is very unpleasant.

Milk, vegetables and cereals are the best food for lithemics, and all cases marked by pronounced symptoms should be kept strictly to the above articles. However, in the management of most cases it is necessary only to direct the patient to eat sparingly and of simple food, and to caution particularly against overindulgence in food of any kind. Stress should be laid upon the latter, because it is certain that overeating constitutes the cause of many cases of lithemia. To prescribe proteids entirely means to eliminate from the dietary most of the ordinary articles of food, and this is practically impossible. Indeed, some nitrogen in the food is necessary to replace the waste occasioned by metabolism. Meat, fish, poultry, eggs, tea and coffee should occupy an inconspicuous place in the dietary; while carbohydrates, fats and milk should make up the list from which the patient can choose. Vegetables in general and fruits are well borne; so also are cereals and small quantities of cheese. It is not necessary to eschew meat entirely; it may be allowed in small quantities at the midday meal, if special injunctions are given that moderation must be observed. The meat may be stewed, as recommended by Kolisch, by which process it is deprived of most of the extractives. If desirable, boiled fish or poultry in small quantities may be substituted for the meat. It is observed that occasionally certain vegetables and fruits disagree with the patient, in which case the offending article must be avoided. Other foods to be interdicted are salads of all kinds, fries, sweet articles—such as preserves, candies, pastries—and malt liquors. Spirits, as a general rule, are injurious, but the writer has observed that their moderate use in some cases is not disadvantageous.

Not infrequently the sudden change in the chemical composition of the diet will, as Haig

pointed out, cause an increase in the severity of the symptoms. This condition, however, is explained on physiological grounds, and, because evanescent, should be ignored. During this period of exaggeration of symptoms it is well to insist upon freedom from the cares of business and a few days' rest in bed.

The fact that the causative toxic agents are eliminated by the kidneys, bowels and skin gives the clew to the medicinal treatment of lithemia. These emunctories should all be gently stimulated by non-irritating agents. The treatment is best begun either by a brisk mercurial purge or with small doses of calomel and soda, given until free catharsis is produced. If constipation be a marked feature, this must be overcome by carefully adapted doses of cascara, given preferably in glycerin once or twice a day as the case requires.

The drugs which, in the writer's experience, produce the best results as general eliminants are the phosphate of sodium and the bitartrate of lithium. The salts of lithium have for a long time enjoyed the reputation of being of especial value in the treatment of lithemia. A series of experiments conducted by him to determine the relative values of the citrate, carbonate, and bitartrate of lithium in these cases was conclusive as to the vast superiority of the last mentioned salt. Not only is it a better diuretic, but it seems to have a specific eliminative power on the alloxuric bodies, which are probably the cause of the lithemic manifestations. Furthermore, its prolonged use is unattended by any disturbances whatever.

While it is necessary to secure satisfactory bowel movements, it is equally important to avoid drastic purgation, as this interferes with free diuresis. In most cases the phosphate of sodium has the desired laxative effect; moreover, its cholagogue action in these cases is particularly valuable. The best routine treatment for most cases of lithemia consists of the administration of the phosphate of sodium in drachm doses once a day, taken preferably in a glass of hot water before breakfast, and from five to ten grains of bitartrate of lithium taken in a glass of water three times a day. These quantities must, of course, be varied to suit individual cases. One drachm of phosphate of sodium may sometimes be repeated to advantage in the course of a day, but the quantity of the lithium salt must be determined by the amount of diuresis produced. One, one and one-half, or two of the effervescing lithia



tablets, three times daily in a glass of water, will be found to meet the requirements of nearly all cases. In accordance with Klemperer's observations, that drugs calculated to eliminate toxic agents resulting from faulty nitrogen metabolism are given to best advantage about four hours after a meal, the writer has followed the rule in the administration of the bitartrate of lithium, and has obtained the happiest results.

In nervous dyspepsia, chronic gastric catarrh, myalgia, and very often in migraine, the prognosis is favorable; but in those cases in which the clinical pictures are almost identical with these affections, but in which a lithemic condition is present, antilithic treatment is the only method attended with good results. There can be little doubt as to the accuracy of this statement; its truth the writer has many times demonstrated to the satisfaction of himself and others.

The value of the salicylates in the treatment of lithemia is, in the writer's opinion, decidedly negative. Their powers of elimination have been greatly overestimated. It is true that their ingestion is followed by increased excretion of uric acid, but this is due to an increased production of this constituent. It is well known that the salicylates increase leucocytosis; and, as Horbaczewski demonstrated, much of the uric acid excreted comes from the catabolism of the nuclein of the leucocytes. It is, therefore, manifestly improper to administer a remedy which causes increased production of any of the alloxuric bodies. Just at this point the writer expresses an opinion, based upon several years of clinical observations, concerning the therapeutic value of the salicylates in those affections for which they are commonly given. In acute rheumatism they are of decided value as analgesics; but in many cases of chronic rheumatism, and in all cases of lithemia and gout, they are of doubtful therapeutic effect.

The excretory activity of the skin is best maintained by frequent bathing. Hot-water baths, taken either every day or on alternate days, are of positive value in the treatment of lithemia. The reputation of the many lithia waters is probably due more to the water they contain than to any of the salts; at any rate they are not to be relied upon, exclusive of other medication. Good pure water, taken frequently during the day in liberal quantities, is to be commended.

The general treatment above detailed—viz., the use of a non-nitrogenous diet and

frequent bathing, the administration of phosphate of sodium and bitartrate of lithium, given preferably in the form of effervescent lithia tablets—will generally suffice to rid lithemics of not only the distressing bilious and migrainous paroxysms, but also of the symptoms referable to the gastro-intestinal tract.

The two classes of headaches mentioned above have yielded to this treatment when cannabis indica, the iodides, salicylates, methyl blue, and the host of other remedies ordinarily used for obstinate headaches, have failed. It is often necessary to treat individual symptoms when pronounced enough to occasion distress. In those cases in which the symptoms of acid dyspepsia are more or less constantly present, which symptoms occasionally culminate in an attack of biliousness or "sick-headache," the remedy popularized by Dr. J. P. Crozer Griffith has given excellent results. It is an alkaline aromatic, the formula of which is:

- R. Ol. caryophylli, f 3 j;
- Sodii bicarb., f 3 ij;
- Chloroformi, gtt. cxx;
- Tr. cardamomi comp., q. s. ad f 3 iij.
- M. S.: Teaspoonful to be taken after each meal.

The writer has found the efficacy of the above mixture increased by the addition of the oil of cajuput in doses of from five to ten minims. In this class of cases, particularly those in which there are present much flatulence and other symptoms of intestinal indigestion, associated with headaches, a compound tablet of beta-naphthol 3 grains, eucalyptol  $\frac{1}{2}$  grain, guaiacol  $\frac{1}{2}$  grain, thymol  $\frac{1}{2}$  grain, given three times daily, is of value. The best results are obtained in the general treatment of lithemia by adopting a brisk eliminative measure during the first two weeks, then reducing the quantities of the drugs for the second fortnight, then again reducing to a minimum, or intermitting them entirely for the fifth and sixth weeks. In many cases small doses of phosphate of sodium and bitartrate of lithium, given continuously, will keep the symptoms in abeyance.

#### THE TREATMENT OF CRUSTA LACTEA, OR INFANTILE ECZEMA.

Dr. KISTLER of Allentown, Pennsylvania, in the *Medical Record* of February 12, 1898, writes on this topic. After stating that the occurrence of this affection in infants and children under four years of age is common, its clinical appearance marked, and the op-

portunity for its complete observation by every practitioner of medicine frequent, he goes on to describe his method of treatment.

Milk tetter occurs among the rich as well as among the poor, and is a most annoying affection, not only to the little sufferer, but to the mother or nurse who has charge of the case, when sleep is so frequently disturbed by the child's distress. In the etiology of infantile eczema, an inherited or congenital tendency to eczematous inflammation may exist, and such cases as a rule are more difficult to cure than cases in which the active cause can be demonstrated.

There are three chief indications to be fulfilled in attempting to cure this distressing complaint, namely, elimination, palliation of local distress, and correction of malassimilation and restoration of strength—which latter are, indeed, the main factors.

For elimination, calomel in purgative doses—one to two grains (preferably tablet triturations), according to age—the object being to stimulate the liver and to obtain a perfect clearance of the stomach and bowels; the dose to be repeated according to circumstances—once, twice or thrice a week, as the patient's condition may indicate.

For alleviation of local distress, itching, etc., the benzoated oxide of zinc ointment is an old but capital application to soothe and protect the skin. The following is another excellent dressing :

- ℞ Salicylic acid, 2 parts;
- Bismuth subnitrate, 40 parts;
- Corn-starch, 15 parts;
- Ointment of rose water, 100 parts.

These ointments should be spread thickly on pieces of muslin and carefully applied, especially in the moist variety. When there is merely a dry squamous form of the affection present, and in the face, the ointment can be rubbed over the surface of the skin. These salves may be repeatedly applied until a thick, white and rather dry coating forms upon the surface of the skin, which greatly lessens the itching and the redness, and allows a healthy epidermis to form. Soap and water are powerful agents to aggravate this existing inflammatory condition, and the frequent washing of an infant or child affected with eczema is to be strenuously interdicted.

The third indication, restoration of strength, is accomplished by correcting the malassimilation and restoring the blood to its normal condition. The best agent for effecting this is that valuable alterative tonic, arsenic;

Fowler's solution, in doses of one to three drops, according to age, may be given. It should invariably be conjoined with iron; the ammoniated citrate, so readily soluble in cold water, combined in proper doses, is a very convenient and efficient preparation for this purpose. The same should be administered three times a day. The elixir of gentian and tincture of chloride of iron in suitable doses are also an eligible tonic and stomachic in this class of patients.

Hygienic and dietetic measures must likewise not be neglected.

#### PRIMARY TREATMENT OF POST-PARTUM HEMORRHAGE.

M. W. CURRAN, of New York, writes a valuable paper on this subject in the *Medical Record* of February 12, 1898. He points out that it is our obvious duty in these cases to compare them with the parallel obvious duty in ordinary surgery. A man's leg is rapidly cut off by a circular saw. From a multitude of small mouths spurts the arterial blood. In a few moments, unless prevented, the amount of available blood in the body will sink below that necessary to keep going the most important nerve centers. What is to be done? Should the surgeon douche the wound with hot or ice-cold water, or pour styptics over its spouting surface, or set to work and methodically tie all these vessels from the raw surface? He would laugh at the question, because here the procedure has been settled once for all on scientific grounds, and he knows for certain the one thing he must do first. The success of all depends on this primary duty, which is to compress the main vessels at once, and not until all the oozing or spouting was secured in detail would he relax this pressure. Let us consider the condition of the patient at this time. The abdominal wall has been stretched to its utmost for many months over the enlarging uterus. Now the uterus is emptied of all resisting contents, and the walls fall limp and flaccid over the abdominal cavity. The muscles, which normally might prevent by their firm contraction, are now powerless, and many weeks must elapse before they are again capable of resisting the pressure of a hand placed upon them. In this condition it is the easiest thing in the world for the obstetrician's hand to find and compress any structure in the abdomen. The aorta is placed in front of the one resisting firm material left, the lumbar spine.

Between the obstetrician's hand in front and the vertebrae behind the aorta can be absolutely shut; no more blood can pass, and no more blood will be lost. What remains in the bleeding vessels below the occluding hand when the driving power of the heart is shut off tends to clot, especially at their open extremities; what blood remains in the circulation above is kept for the use of the all-important nerve centers, and as more and more blood comes in from the veins, especially of the lower extremities, for the vena cava is carefully avoided, this reserve increases and respiration and circulation in the most important parts are increasingly provided for, while all the time the tissues which require rest, the ultimate ligatures, the uterine muscular fibers, are obtaining and profiting by that rest and becoming more and more fit to do the work of which they are perfectly capable when once they have recovered their condition. When necessary time has elapsed and their contractility has returned, then and then only is the time for their stimulation. What would be thought of the surgeon who held the femoral artery for a minute and then let it go before the vessels were closed on the wound front, and what is to be thought of the advice given by some leading authorities?

Barnes says: "I have occasionally derived advantage from it, and look upon it as a momentary resource."

Playfair thinks that "as a temporary expedient it should be borne in mind and adopted when necessary."

Jewett considers it "very effectual as a temporary expedient."

Lusk thinks that "compression of the aorta through the abdominal wall is capable of rendering temporary service."

"Should all these measures fail, try to compress the abdominal aorta."

It is precisely this half-hearted advice, which has a dozen resources in stock and trusts none of them, which is to blame for the general muddle-headedness of mind which is bound to result from a consultation of authorities. If one thing does not succeed, try something else; but the patient should no longer be considered doomed, for whom the physician is bound to do everything, in order to cover his reputation at the inevitable inquest.

Macewen has "effectually controlled the abdominal aorta by throwing the weight of the body on the aorta through the closed right hand, placed a little to the left of the

middle line, the knuckles of the index-finger just touching the upper border of the umbilicus. With the left hand the arrest of the blood current is ascertained by feeling the femoral at the brim of the pelvis. Only enough weight to arrest the femoral pulse is required. If the patient vomits or coughs, the pressure must be increased, lest the hand be lifted from the aorta by the abdominal muscles."

In order to compress the abdominal aorta, it is not necessary but rather injurious to move the patient from the ordinary dorsal position. With the patient lying, as she usually does, flat on the back, the obstetrician's hand is easily applied under her without even disturbing the coverings of the bed, and avoiding exposure, which is the *sine qua non* of all remedial measures. The ulnar surface of the closed left hand—the physician standing on the right-hand side of the patient—should be laid gently but firmly across the aorta, which should then be compressed against the spine, while the right hand should feel for and compress the uterus. The hands may be changed from time to time, but the compressing hand should never be lifted until the other is in position above or below it and has taken up control of the vessel. The time during which compression is needed will vary with every case, and must depend wholly upon the cessation of hemorrhage and on no other factor. It is convenient and always necessary to have an assistant at hand, who may relieve the tired muscles of the original attendant. Two points are of great importance: First, inasmuch as the solar, epigastric and mesenteric plexuses lie over and around the aorta, pressure must be shifted upward or downward from time to time. The pressure on the aorta does not matter, but too long continued pressure upon any one point of the sympathetic does. Secondly, when pressure is taken off ultimately it must be very gradually done. The uterus should be felt to be firmly contracted; the aortic pulse should be firm, strong, and fairly slow; and the effect of releasing the current should be most carefully watched. If there is the least return of flow, the uterine ligatures are not yet to be trusted and compression must be resumed. This, then, is the primary duty. Once done and persisted in from the earliest possible moment until the desired firm contraction has been obtained and can be manifestly relied upon, the patient is safe as far as any earthly means can make her; and, with the entire self-possession which perfect

security gives, the physician can quietly and without needless hurry put into force the secondary measures which are to bring about the secondary result—namely, the firm and lasting uterine contraction. All these secondary measures require an appreciable amount of time for their satisfactory action; moreover, they all act best on muscular fiber which is recovering or has recovered its contractility. In this alone is seen the fatal mistake of considering them of primary importance, and of wildly flying from one to the other, vainly seeking for a result which the inherent conditions present render impossible or at best extremely improbable. These secondary measures are: hypodermic injections of ergotin, brandy by mouth or rectum, raising the foot of the bed, hot bottles around the trunk, wrapping the head in hot flannel, kneading gently the uterus with the disengaged hand, removal of any clots or placental debris—which now that the main source of blood-supply is shut off can be done with far more safety, because with calmness and deliberation—and examination of the os, cervix and perineum for tears, and their repair.

But it may be said that this advice is only theoretical, and that no cases are on record to prove it. The writer states that he suspects that the method is more in use among practical men than one would suppose from a perusal of the literature on the subject. Practising autotransfusion as described for cerebral anemia, when aortic pressure is an easier and better method, or using Monsell's solution as a styptic, with its danger of producing gangrenous endometritis and secondary infection, in preference to applying the hand to the aorta, may be in favor with the savants of the profession, but hardly with another human being endowed with a healthy perception of the fitness of things, and who by experience realizes that in every case, whether complicated by retained placental fragment, torn cervix, or any other condition, the one and only measure of primary importance in the treatment of post-partum hemorrhage is compression of the aorta.

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**GLAUCOMA AND THE INFLUENCE OF  
MYDRIATICS AND MYOTICS UPON  
THE GLAUCOMATOUS EYE.**

Dr. EDWARD JACKSON contributes to the *American Journal of the Medical Sciences* for April, 1898, an article with this title. With reference to the use of mydriatics, he thinks we are justified in saying that in general they

should not be applied to eyes that are glaucomatous or upon the verge of glaucoma. In such eyes the dilatation of the pupil they commonly produce is dangerous, and may cause increase of intra-ocular tension, which, if not speedily relieved, will do permanent damage. But the risk of this effect from a mydriatic is not to be guarded against by fixing an age limit before which mydriatics may be considered safe and after which they should not commonly be employed. In the great majority of eyes a mydriatic cannot cause glaucoma at any time of life, while, on the other hand, a few patients are affected with the disease even from childhood. The danger is best guarded against by bearing in mind the symptoms of glaucoma, and always looking for them before ordering a mydriatic, especially by a careful ophthalmoscopic examination.

In very rare cases careful examination may not reveal the imminence of glaucoma, yet when the mydriatic has been used the outbreak may occur. In such a case the usual remedies for glaucoma should be promptly resorted to. The mydriatic should be stopped and iridectomy strongly urged. With the proper iridectomy promptly done the prognosis for complete permanent cure is excellent, the results being decidedly better than in cases discovered at a later stage when the glaucomatous outbreak has occurred spontaneously. Indeed, if the patient permits the proper, immediate treatment of his case, the fact that an outbreak of glaucoma has been evoked by the use of a mydriatic is probably a cause for congratulation rather than for regret. For the eye was, in all probability, doomed to the disease, and the earlier application of the remedy gives the better chance for complete and permanent cure.

The author believes it would be perfectly proper, after explaining the matter to the patient, and getting his assent to prompt iridectomy if it should be indicated, to use homatropine as a test for the presence of glaucoma at the earliest stage in doubtful cases.

If the patient refuses iridectomy, eserine should be promptly resorted to in such strength and with such frequency as may be necessary for the reduction of the pupil. In the case of a glaucomatous outbreak following the use of a mydriatic more persistent in its action than homatropine, it would be proper to shorten the period of mydriasis by tapping the cornea and evacuating the aque-

ous humor, preparatory to the efficient use of eserine.

In any case of glaucoma in which the pupil is firmly bound down by adhesions, or is otherwise so fixed that mydriasis cannot cause thickening of the iris opposite Fontana's space at the angle of the anterior chamber, especially if the application of eserine aggravates the symptoms, it is justifiable to apply atropine or some other mydriatic, and in a small proportion of cases such applications will be of marked benefit.

Myotics are beneficial in glaucoma only when the pupil is still movable—that is, chiefly in the earlier stages. When not beneficial, they are usually distinctly injurious.

If for any reason iridectomy cannot be done, myotics are always to be tried in the earlier stages of the disease. If they cause marked improvement they may be continued so long as the improvement persists. If they reduce the eye tension they may be continued so long as they keep the tension down; if they promptly relieve attacks they may be continued so long as attacks are rendered less severe and frequent, and leave no permanent impairment of function, either of central vision or of the field, in the interval. But in the vast majority of cases there will come a time when the influence of the myotic, although still favorable, is less favorable than it has been; and after this it is liable to rapidly lose its power to do any good at all. Hence, whenever this period arrives the patient should be warned that the myotic is insufficient, practically worthless, and an operation, preferably iridectomy, gives the only chance for escaping complete blindness and, perhaps, intense suffering.

#### *PILOCARPINE IN CHORIO-RETINITIS AND VITREOUS OPACITIES.*

The *Ophthalmic Record* for February, 1898, contains an editorial by de Schweinitz on this theme. Soon after the introduction of the alkaloid of the *Pilocarpus jaborandi* into the general medical armamentarium, the attention of ophthalmologists was directed to its value in ocular therapeutics, quite independently of any local action which it exercised upon the accommodative apparatus or the intra-ocular tension. Its extraordinary influence as a diaphoretic, as a remedy which facilitated the removal of effusions, and as a medicament which seemed, under certain circumstances, to powerfully stimulate and alter the nutrition of diseased areas, and even of

tissues that were not diseased—for example, the hair bulbs—led to its use for the relief of exudative inflammatory affections, especially when located in the uveal tract. Some of the results following the use of this remedy in the treatment of irido-choroiditis with vitreous opacities, equatorial choroiditis with circumscribed choroidal atrophy, diffuse infiltration of the retina and hyalitis, and even the neuro-retinitis of Bright's disease, as recorded by Landesberg in 1881 and von Schroeder in 1883, were strikingly favorable, and as its efficiency became established it was soon recognized as an important remedy in the management of cases of this character.

Although clinical experience has not indicated its utility in the management of keratitis, for example, of the interstitial variety, it has proved its great use in certain types of iritis and irido-cyclitis—as, for example, those recorded by Buller some years ago—its value, in the writer's experience, being particularly great in the iritis and kerato-iritis which sometimes seem to be of gonorrheal origin, and even in those varieties which are probably gouty in nature.

Not only, however, does the remedy seem to be active when it is used in large and diaphoretic doses, but also when employed in more moderate amounts. Thus, in 1892, in the *Archives of Ophthalmology*, Dr. James A. Spaulding contributed an excellent practical paper on idiopathic vitreous hemorrhages, concluding that the most efficient treatment of this affection required the hypodermic use of small doses of pilocarpine, believing, moreover, that it was not necessary to produce visible physiological effects for the remedy to be useful in the eye. Shortly afterwards, in the *THERAPEUTIC GAZETTE*, the writer described a treatment of vitreous opacities with the fluid extract of *jaborandi*, and reported a number of cases in which the vitreous had cleared under the influence of the drug when the opacities were hemorrhagic in origin, and also when they had been associated with types of quiet iritis and low-grade choroiditis. None of these cases, of course, were of syphilitic origin.

Recently Dr. Howard F. Hansell (*Philadelphia Polyclinic*, Nov. 20, 1897) has published a most suggestive and instructive paper on the use of pilocarpine in non-syphilitic central retino-choroiditis. In one case the vision was raised from 20-200 to 20-20(?) in a month, and in another case from 20-50 to 20-20 in one week; in two other cases there was marked visual improvement.

Dr. Hansell's description of the action of pilocarpine under these circumstances is so clear that it is quoted in his own words, namely: "The efficiency of pilocarpine is to be attributed to the inordinate activity of the lymph system induced by its presence. By depriving the peripheral vessels of a large portion of their fluid contents those of the internal organs meet the deficiency, thus eliminating morbid products, together with physiologic excretions." An interesting fact in connection with Dr. Hansell's cases is that potassium iodide and mercury had been previously exhibited in large doses without avail.

A word as to the manner of administration. Pilocarpine is to be preferred and the hypodermic method should be adopted. If in rare instances this is not advisable, or is strenuously objected to by the patient, equally good results, although perhaps not so promptly or actively produced, may be secured by enemas of the fluid extract of *jaborandi*. The hypodermic dose of pilocarpine may vary from a twelfth to a sixth of a grain, under ordinary circumstances, and should be repeated every second, third or fourth day, according to the patient's power of resisting so active a remedy. Now and then, probably owing to idiosyncrasy, very disagreeable results follow its use, as no doubt has been the experience of every surgeon who has employed it. Thus, there may be marked nausea, evidences of pulmonary edema, and occasionally serious cardiac depression. It has been the writer's habit to administer about an hour before the injection thirty drops of chlorodyne. The use of this remedy in this manner has been advocated by so high an authority as the professor of therapeutics in the University of Pennsylvania, and will usually prevent the nausea. During the days devoted to the pilocarpine treatment, small doses of tincture of *digitalis* may with advantage be administered, tending as they do to prevent cardiac depression and to steady the circulation. Occasionally a patient will be found who curiously resists the action of pilocarpine, while in others the remedy, instead of exciting diaphoresis, will exceptionally produce the untoward symptoms already noted.

#### TREATMENT OF HEMOPTYSIS.

The *Clinical Journal* of January 5, 1898, contains an article by Biss on the treatment of hemoptysis. He believes that in the treat-

ment of pulmonary hemorrhage some stress must be laid in the first place upon the moral management of the patient. The alarm he naturally feels should be relieved by the assurance—if it can be truthfully made, as in most cases it can—that the hemoptysis is not likely to prove fatal. He should be enjoined to be restful and quiet, and care should be taken to avoid the injudicious fussing of relatives and others around the bed.

Should the patient be found lying upon a bed or couch, it ought to be carefully considered whether it be wiser to move him or to leave him undisturbed; but the writer thinks in any case the effort should be made to loosen, and if possible to remove, all tight clothing, not by taking the clothes off, which would be extremely injudicious, but by loosening or cutting them open as far as may be possible without unduly disturbing the patient. The examination of the chest by percussion and auscultation should be avoided, except so far as listening to the breathing over the front of the chest, for the site of the hemorrhage may frequently be determined in this way. The sensations of the patient are not a safe guide, and must be regarded with caution. The importance of ascertaining the source of the hemorrhage, where this is possible, is great, for over that spot we should apply the ice-bag if we decide to use it; and in some cases when a patient has bled profusely into one lung, and is half suffocated in consequence, an appropriate change of position may enable him to cough up the blood which has collected, and avert impending asphyxiation.

Opinions are divided as to the advisability of applying ice to the chest; some think that it does no good, others think that it tends to induce catarrh. The writer is of the number who believe that in many cases this is a valuable method of treatment, and ought unhesitatingly to be adopted. He has not seen it produce catarrh, and he has many times seen it do at least apparent good. Moreover—and this is a point of some importance—the feeling that a means of treatment which appeals strongly to his senses is being employed for the arrest of the hemorrhage has a soothing effect upon the patient's mind. The same remark applies to dry cupping, but this is not altogether unobjectionable on account of the physical disturbance which it is apt to produce, and he does not recommend it.

Whether the cough ought or ought not to be relieved in any given case of hemoptysis is a question which must be decided at the bed-

side. Unless the cough is severe it does not need treatment; on the other hand, if it is necessary for the purpose of clearing the lungs of blood, it is a great question whether good would be done by checking it. There is, however, an intermediate class of cases in which it is most desirable to reduce the frequency and severity of the cough, and in these cases he thinks a hypodermic injection of morphine is to be preferred to any other means.

Patients spitting blood, especially soon after they have begun to spit blood, and if in large quantity, are frequently restless and alarmed; sometimes, on the contrary, they are passive and half collapsed. In cases of nervous excitement he thinks the employment of opium in some form is most desirable, for in no other way can we so effectively secure that quiescence of body and mind which is necessary to the well-being of the patient.

In hemoptysis it is generally, not to say invariably, advisable that the bowels should be opened as soon as possible, and be kept freely opened; for as the abdominal circulation is capable of containing a large part of the total amount of blood, it is not unreasonable to believe that the induction of brisk bowel action by means of purgatives will cause a large amount of blood to pass into the intestinal vessels, and that this may tend to reduce the tension of the circulation elsewhere. He lays stress upon this point, not only on account of its intrinsic importance, but because he has frequently found in cases of hemoptysis that patients have been treated without any regard to these considerations, the bowels having been kept confined by the administration of astringents and opium, sometimes without design, and sometimes from a belief that the patient is in a more favorable position if spared the exertion of defecation. This need not be feared, however, if the patient is properly nursed. It is unnecessary to say that he should not leave the recumbent posture, and that the use of the bedpan should be enjoined. He does not recommend the administration of enemata if they can be avoided, for many persons become excited under their use, and the restlessness induced by the application of a remedy to which an objection is felt might induce further bleeding. Probably nothing is better than the immediate administration of five grains of calomel, followed by a saline purgative at an appropriate interval; after which free action of the bowels may be maintained by adding to the mixture to be given

some sulphate of magnesia along with a carminative, such as syrup of ginger, in sufficient quantity to produce two or three watery stools daily.

Our knowledge as to the exact pharmacological action of most of those remedies which are in repute as remote astringents is very imperfect, and even in some cases contradictory; and for this reason it is doubtful whether there is any advantage in the administration of certain drugs which in days gone by have been held in regard as internal styptics. Among these may be named gallic acid and ergot, the former of which is objectionable on account of its tendency to constipate the bowels; and as to the latter, there is some reason to believe from recent researches that while it contracts the smaller systemic arteries it has no effect upon those of the lungs, and that it may indirectly tend rather to raise the tension of the pulmonary circulation. There is very little evidence to show that hamamelis, dilute sulphuric acid, and other astringents of this class, have any definite effect upon the small vessels of the lung. More, perhaps, may be said for turpentine, the action of which in the hemorrhage of purpura and scurvy is recognized to be of great value. In many cases the writer leans to its employment conjoined with sulphate of magnesia, and sometimes opium also.

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*REPORT OF TWENTY-NINE CONSECUTIVE INTUBATIONS FOR DIPHTHERITIC CROUP, WITH TWENTY-SEVEN RECOVERIES, ALL TREATED WITH ANTI-TOXIN.*

WAXHAM, of Denver, has made a report of twenty-nine cases of intubation with the combined use of antitoxin in the *Archives of Pediatrics* for March, 1898. All the cases were seen in consultation, and in all of them the operation was urgently required. Three were under two years of age, with two recoveries, or 66⅔ per cent.; eight were two years old, with eight recoveries, or 100 per cent.; six were three years old, with six recoveries, or 100 per cent.; six were four years old, with five recoveries, or 83⅓ per cent.; two were five years old, with two recoveries, or 100 per cent.; and four were six years old, with four recoveries, or 100 per cent. Total, twenty-nine cases with twenty-seven recoveries, or 93.1 per cent., a mortality of only 6.9 per cent. This great reduction in the mortality is to be attributed to the full and free use of antitoxin in all the cases.

*THE TREATMENT OF MIGRAINE.*

At a recent clinical lecture given at the Hospital Laennec by HIRTZ, this subject was considered. After a historical *résumé* of the various forms of treatment which have been recommended for this painful condition, he mentions the fact that Pare practised excision of the temporal artery, Avicenne employed opium and absinthe, Tissot commended the use of venesection and emetics, and the tincture of cochineilla and *Paullinia Sorbilis* have acquired celebrity in its treatment. Sydney Ringer has employed an infusion of half to a drachm of chamomile to combat the attack. Antipyrin is of advantage in some cases, the dose varying with the individual. As much as forty-five grains may be needed for the cure after an attack has once thoroughly begun. The relief obtained from the antipyrin may be increased by giving with it eight or ten grains of bicarbonate of sodium. If the stomach is non-retentive antipyrin may be given in the dose of thirty to forty-five grains by the rectum, with twenty to thirty drops of laudanum. Often caffeine given by the mouth or hypodermic injection is useful. The following preparation is used:

- ℞ Caffeine,  
Benzoate of sodium, of each 4 drachms;  
Peppermint water, 4 ounces.

A coffeespoonful of this solution may be given every two hours.

For hypodermic use the following may be employed:

- ℞ Caffeine, 40 grains;  
Benzoate of sodium, 45 grains;  
Distilled water, 150 grains.

Thirty minims of this may be given hypodermically.

Acetanilid and phenacetine may be given in other instances, usually in the dose of four or five grains four or five times a day. On the principle that the attack may be due to spasm or paralysis of the blood-vessels, nitrite of amyl may be employed in those cases with high tension, and ergot in cases of low tension. Brunton's recommendation that full doses of sodium salicylate should be given combined with bromide of potassium is mentioned, and Schumann's statement that methylene blue is of service in spasm of the blood-vessels is mentioned. It may be given in capsules in the dose of two grains three or four times a day. Full doses of cannabis indica are also suggested, and it should not be forgotten that sometimes eye strain is re-

sponsible for the condition. As a prophylactic the following may be employed:

- ℞ Sulphate of quinine, 45 grains;  
Powdered digitalis, 20 grains;  
Syrup, a sufficient quantity to make 30 pills.  
One every night continued for several months.

If the patient is rheumatic or gouty careful attention should be paid to his diet. Alkaline mineral waters, such as are obtained at Carlsbad, Tarasp or Vichy, are used. Such cases may also receive the following pill:

- ℞ Valerianate of quinine, 15 grains;  
Extract of colchicum, 4 grains;  
Extract of digitalis, 4 grains;  
Extract of aconite, 2 grains.

Make into ten pills and give one at night after dinner.

When migraine is due to neurasthenia it is much benefited by living in the country, by moderate muscular exercise, and avoidance of professional occupations. Arsenic is also a remedy not to be forgotten, and hydrotherapy, static electricity and psychotherapy are valuable adjuncts to treatment.—*Journal des Praticiens*, Dec. 11, 1897.

*THE TREATMENT OF ACUTE EDEMA OF THE LUNGS DUE TO AORTIC LESION.*

*La Presse Médicale* of March 5, 1898, advocates the following treatment in this condition:

In the presence of severe valvular lesions it is necessary that the patient shall lead a regular life, shall not be fatigued, shall be at least nine hours in bed, and shall rest for two hours after each of her principal meals. The diet should consist of broths, well cooked tender meat, fish, light wines and sparkling waters, and moderate amounts of coffee and tea. Small quantities of liquid should be taken with each meal so as not to overload the stomach. In the way of medication it will be well every week or two to alternate with small doses of iodide of potassium and theobromine. A rectal injection should be taken daily amounting to about a pint of warm water to keep the bowels active, and it is well to have the body energetically rubbed with flannel dipped in alcohol for ten minutes every day. Should the physician be called to see a case during an acute stage of illness when these prophylactic measures cannot be instituted, or should the patient subject herself to unusual fatigue or excessive eating, she may be suffering from a sensation of palpitation, retro-sternal pain,



cardiac anguish, general wretchedness, impaired respiration, and cough. The cough may be dry or it may bring up small quantities of whitish mucus; more rarely it is pink or even red in hue. The expectoration usually becomes more abundant after an attack has lasted some time. If the difficulty in respiration is very severe the patient may break out into a cold sweat and may have cyanosis, turgid jugulars, and great anxiety for air and a feeling of impending death, the pulse being small and rapid; the extremities may feel cold, and râles will be found distributed throughout the chest, particularly at the two bases. There may be some dilatation of the right heart. The movement of the thorax is tumultuous owing to the irregularity of the heart's action.

The diagnosis in the presence of such symptoms will probably be acute asphyxia, edema of the lung with functional trouble of the cardio-pulmonary plexus. The indications to be met will be to overcome the congestion of the lung, to correct disorder of the vascular system, to improve the tone and regularity of the cardiac systoles, and to reassure and comfort the patient. In some instances immediate resort to venesection should be had, and it may be necessary to give some powerful cardiac and nerve stimulant.

The definite treatment consists in the application of mustard plasters over the sternum, bleeding from the median basilic vein to the extent of five or six ounces, the inhalation of a few drops of sulphuric ether poured upon a handkerchief, hot applications to the trunk and to the lower extremities, and it may be a hot foot-bath. Assure the patient, with an air of calmness and authority, that she will recover. It may also be advisable to inject hypodermically into the abdominal wall thirty to sixty minims of the following solution:

- ℞ Caffeine, 40 grains;
- Benzoate of sodium, 45 grains;
- Distilled water, 2½ drachms.

In the way of nourishment small draughts of hot or cold milk may be given. Absolute rest in bed is to be insisted upon in some cases; if the bowels are at all confined a mercurial purge will be of advantage. After the acute attack passes off the diet should consist of milk in small quantities given either hot or cold every two hours. An egg may also be given each day. Care should be taken during recovery that exercise is not resorted to too early.

#### CONCERNING CATARACT EXTRACTION— A REVIEW WITH COMMENTS.

Dr. G. E. DE SCHWEINITZ, the well known ophthalmologist of Philadelphia, contributes an interesting article embodying his views on this subject to the *Ophthalmic Record* for February, 1898. In his belief, in corneal section the disposition to make the incision exactly through the corneo-scleral junction, or through the transparent margin of the cornea, continues to be general, the height of the flap, or in other words, the extent of the corneal periphery which is included, varying according to the method of extraction which is adopted. It is generally conceded that for the proper expulsion of the lens in combined extraction, a flap embracing about one-fourth of the corneal periphery is sufficient. When the cataract is large, it is safer to include fully one-third of the corneal periphery. For the extraction of full-sized cataracts by the uncombined or simple method, the section may comprise nearly or even wholly the upper half of the cornea. Variations from these dimensions, however, are common, according to the experience and judgment of individual operators. Indeed, there can be no arbitrary rule—the probable size of the lens and the character of the cataract are the governing factors.

If, as Knapp has long advised, the knife remains in the same plane throughout, and the blade is turned neither forward nor backward at the completion of the section, a small conjunctival flap results, which is rather an advantage than otherwise. In Professor Snellen's operation the incision occupies half the circumference of the cornea, and lies in the apparent corneo-scleral margin. A large, broad, conjunctival flap is made after the section of the corneo-scleral margin is completed. This conjunctival flap possesses several advantages: it conserves the vitality of the cornea, promotes healing, and prevents iris-prolapse. The procedure has been commended by Berry, Landolt and other operators, but, owing to the hemorrhage which sometimes follows the formation of conjunctival flaps, they have been condemned by so experienced an operator as J. A. White, of Richmond.

It will be remembered that the late Dr. Williams, of Boston, was accustomed to make a Lebrun incision, and to place a small suture in the apex of the flap. His son, Dr. C. H. Williams, after simple extraction, when a small conjunctival flap remains, places in the flap one to three sutures. A strong advocate

of suture after extraction is Kalt, in France. The reviewer is impressed with the value of a conjunctival flap, and although he has not used sutures to close the wound after extraction, he has placed them with advantage after excision of a prolapsed iris.

Differences of opinion in regard to the best method of performing capsulotomy continue. It would seem that peripheral capsulotomy, as practised by Knapp, possesses the greatest advantages, if it is understood that needling of the capsule later on is a necessary procedure—is, in other words, as Knapp has stated, the final stage of cataract extraction. An opening by means of a central crucial incision possesses disadvantages, but these are not present if the incisions are made in the form of a T. Excision of the center of the capsule with forceps is usually reserved for those cases in which there is manifest thickening of this membrane. Nevertheless, as is well known, the routine practise of capsulotomy with forceps is advocated by many experienced operators.

The disposition to perform "simple extraction" continues to be very general, or perhaps the procedure has found more universal favor, although now and then an operator of experience has decided to return to the "combined method." There seems, however, to be a greater tendency to select cases, or rather to separate those suited to the operation with iridectomy from those suited to the operation without excision of a piece of the iris. To be sure, the old fear of prolapse of the iris, which for a time was the chief objection to simple extraction, is passing away. Indeed, Berry has gone so far as to state that iris-prolapse, if the operation is performed after the manner of Snellen, need not be considered. He is, as are most surgeons, however, careful to make an iridectomy if the iris does not at once undergo easy, spontaneous replacement, or if it is not readily replaceable by the ordinary methods.

It is interesting to note the character of cases selected for the combined method of extraction. Thus, Berry excludes from simple extraction cases of hard, nuclear, black cataract in old people, and of overripe cataract with capsular opacities and disease of the suspensory ligament; also cases in which there is a very shallow anterior chamber, and in which there is a foreign body in the lens, or in which there are iritic adhesions. So, too, he prefers combined extraction in nervous and unruly patients. In addition to the

cases catalogued by Dr. Berry, the reviewer considers those in which the ball is hard, the lens large, and the iris not readily dilatable, or where there is ciliary irritation and the cataract is not yet ripe, more suited to the combined than to the simple method.

Now and then reports of an attempted revival of the extraction of cataract in the capsule appear. For example, Gradenigo after section ruptures the zonula through its entire length with a small hook and then delivers the opaque lens.

With reference to the treatment of prolapse of the iris as a complication of simple extraction of cataract, a good many surgeons follow Knapp's advice to cut off the prolapse and reduce the edges of the iris if it is discovered within a few hours after its occurrence; if it is not seen early, to allow it to remain until the eye is quiet, when, if there is staphylomatous bulging, the protrusion may be abscised, or, in other words, treated as a staphyloma of the cornea.

The conservative treatment of iris-prolapse, however, even when discovered early, is gaining ground, as may be inferred from the recent communications on this subject by Dr. Robert L. Randolph, Dr. Joseph A. White, and others. Under suitable bandaging the prolapse flattens out and operative interference seems rarely indicated. In the discussion just referred to, the doubtful value of eserine in restoring a prolapsed iris was emphasized, because, as Dr. Randolph points out, it is apt to heighten the condition of irritation and does not seem to have much power in pulling the iris into place. Atropine, on the other hand, does not increase the hernia and lessens irritation. It is taken for granted that a compress bandage is applied during the treatment.

While the belief of Dr. John E. Weeks, expressed two years ago, that "it will not be long before the artificial methods of ripening cataracts will be entirely abandoned," may not yet have been realized, it is safe to state that the practise of ripening cataracts, whether by discission, Förster's method, or the Boerne Bettman, or the White-Pooley operation, appears not to have gained favor with the profession. If patients will not wait for Nature's method of ripening, it seems preferable to extract the unripe lens, and if necessary to deal with remnants by secondary discission. Indeed, Elschsig believes that all senile cataracts in patients over fifty are readily removable, whatever the condition of nucleus and cortex, and he is ready to extract as soon as

vision becomes too poor to permit the patient to follow his ordinary vocation.

It is desirable that more information should be available with reference to the duration of treatment and the visual acuity after the extraction of unripe cataract. Statistics thus far published are quite as favorable as those relating to ripe cataract. This information is particularly needed on account of the frequent advertisements in the public prints of methods of absorbing cataracts employed by irregular practitioners. Patients, naturally depressed by a period of semi-blindness, are apt to be deluded by these advertisements into undergoing treatment, which, to put it mildly, is at least valueless.

From the very fact that preliminary iridectomy is usually recommended in cases where serious complications are apprehended, or where for any reason an extraction in one eye has terminated unfavorably, we may assume that there is a well-founded faith that this procedure improves the patient's chance of recovery. It would not be possible to discuss the advantages and disadvantages of preliminary iridectomy in this brief review, nor indeed is it necessary, as the whole subject has been very elaborately considered in the April number of the *Annals of Ophthalmology*, by Dr. W. Franklin Coleman, who places himself on record very decidedly as believing that this is the safest method of extracting cataract, and one which should be commended to operators of limited experience.

Except in rare instances, in which the cataract is removed in the capsule, or in which a large piece of the anterior capsule has been removed with capsule forceps, sooner or later the division of the membrane is required if the highest type of visual success is to be obtained. Various modifications of the knife-needle continue to be used by most surgeons, although a few, like Schweigger, have abandoned needles, or knife-needles of any description, and divide all so-called secondary cataracts with scissors introduced through a small wound made with a broad needle. Da Gama Pinto's very large experience with operations for the relief of secondary cataract indicates the value of a narrow Graefe cataract knife as an instrument for dividing the membrane. This surgeon, in addition to the ordinary operation of laceration of the capsule, has resorted to the so-called posterior discission, in which the Graefe knife is passed through the sclera about eight millimeters behind the corneo-scleral junction. Recently

Edward Jackson, arguing that the proper division of the membrane which remains after the extraction of cataract requires the longest possible sweep of the cutting edge of the instrument, advocates the entrance of the knife-needle through the limbus. He also believes that this method lessens the chance of infection. The writer uses Knapp's knife-needle with entire satisfaction; sometimes, when the membrane is thick, he has practised with a modified Hays knife-needle the so-called V-shaped iridotomy, as described by Dr. Lewis Ziegler, of Philadelphia.

The ordinary methods of sterilization of instruments have not been greatly modified, and boiling water continues to hold its very proper preeminent place. It is possible that the recent suggestion made by E. A. de Schweinitz, of Washington, to utilize the vapor of formaldehyde for the purpose of sterilizing ophthalmic instruments, will prove to be valuable. Certainly the method would be a most convenient one.

It is so well known that neither irrigation nor the instillation of germicides produces sterility of the conjunctiva, that surgeons should strive, and do strive (to quote Knapp), to change the conjunctiva, if irritated or congested, into a pale, shining membrane by the simplest regimen. This regimen means that for some days preceding the operation the eye should be protected from anything which may produce hyperemia of the conjunctival vessels, because, as Randolph has expressed it, bacteria ordinarily non-pathogenic (and the normal conjunctiva always contains bacteria) may become harmful under certain favoring conditions, such as bruising the tissues by instruments, or irritating them with chemical substances. Whether all surgeons would be willing to follow Randolph in his advice to abandon conjunctival irrigation entirely is doubtful. Flushing the conjunctival cul-de-sac with a non-irritating fluid like sterilized salt solution immediately preceding the operation can at least do no harm in the sense of bruising the tissues, and may wash away irritating and contaminating secretions, and even, as has been experimentally shown, reduce the number and perhaps the vitality of the organisms which are present.

The evident conclusion of the matter is that strong germicidal solutions should not be used in the conjunctival cul-de-sac immediately preceding a cataract extraction, or after the corneal section; and to quote Randolph once more, in operating upon the normal conjunctiva, as in cataract extraction, the

surgeon would do well to consider the subject of antiseptis and asepsis chiefly in connection with hands, instruments, cocaine, and atropine. When the conjunctiva is not normal, as, for example, in cases of chronic conjunctivitis, lacrimal conjunctivitis associated with disease of the tear passages, blepharo-conjunctivitis, etc., methods of antiseptis necessarily must be more vigorous, or rather operation must be deferred until the affected areas are brought into a reasonable state of health. It seems to the writer very essential in all of these cases to pay strict attention to the preliminary treatment of the rhino-pharynx, from which, no doubt, many cases of infection have arisen.

#### PROPER PREPARATION OF THE YELLOW OXIDE OF MERCURY OINTMENT.

T. E. MITCHELL writes upon this subject in the *Ophthalmic Record* for February, 1898. After referring to the very valuable suggestions of Drs. Babcock and Keiper, in the August and September numbers respectively of the *Record*, in regard to the proper way of preparing the yellow oxide of mercury ointment for use in ophthalmological practise, the writer says he desires to say that no matter how much time and care are consumed in mixing the powder and the vaselin if no other agent is added, minute particles of the mercury will remain and hence defeat the desire to have it uniformly distributed throughout the vehicle. This obstacle can be easily overcome by observing the following instructions in the preparation of this time-honored and valuable therapeutic agent: To the required amount of powder in an impalpable form on a clean glass or porcelain slab add a few drops of any bland non-irritating fixed oil and mix well with a clean spatula; to this slowly add the necessary petrolatum, and for reasons well known to chemical law the powder is so far reduced by the oil that it is evenly incorporated in the vaselin.

The following prescription, which is a favorite one with the author, in the hands of a competent pharmacist will be entirely satisfactory:

℞ Olei ricini, gtt. iv;  
Hydrarg. oxid. flav., gr. iij.

Misce et ad

℞ Petrolati, ℥ ij-iv.

Misce ft. unguent.

Of course the ointment after all is only a mixture, but the mass is so thoroughly homo-

geneous that not until it is kept for a long while will the mercury gravitate to the bottom.

The author states that he is indebted for the above information to his prescriptionist, Dr. J. P. Turner, ex-president of the Georgia Pharmaceutical Association, and member of the Georgia State Board of Pharmacy.

#### THE TREATMENT OF ASPHYXIA NEONATORUM BY THE HYPODERMIC INJECTION OF STRYCHNINE.

FRY in the *American Journal of Obstetrics* for April, 1898, writes on this topic. In the course of his article he points out that under normal conditions the birth of the infant is quickly followed by respiratory efforts, the contact of the air exciting the reflexes. If such be not the case, evidence is soon apparent of non-oxygenation of the blood. The excess of carbonic acid in the blood then excites the respiratory center in the medulla, and inspiration takes place. If, on the other hand, the respiratory center fails to respond, the cord should be cut and a little blood permitted to escape. The infant should be suspended for a moment by the heels to facilitate the gravitation of mucus from the throat and trachea. The finger passed quickly into the pharynx removes the secretion and excites respiratory effort. The cutaneous reflexes may next be excited by slapping the surface with the palm of the hand or a wet towel, sprinkling with cold water, or pouring ether upon the chest. Immersion alternately into hot and cold water is a good method. The asphyxia persisting, some form of artificial respiration may be resorted to. Schultze's is most efficient, as it aids the expulsion of the fluids from the air-passages by gravitation and expression, as well as produces inspiratory and expiratory movements. If success does not soon reward the efforts it should not be continued too long, as it is a rough method at best. The hypodermic injection of fifteen minims of whiskey acts as a powerful excitant and has given the writer most gratifying results. During the past few years it has given success without other treatment in a number of cases of this form of asphyxia, both in private and hospital practise. In several of the cases the more serious stage of asphyxia had been reached. He believes the credit of this treatment belongs to Dr. Bedford Brown, of Alexandria, Va.; at least he first called attention to it so far as the writer is aware.

If the mild type of asphyxia does not yield to the above treatment or some of its modifications, the more serious form (the pallid) supervenes. The line of treatment should now be modified to meet the changed conditions. The persistence of vigorous efforts to excite artificial respiration will only act injuriously upon the heart and stop its enfeebled action.

An infant born with the pallid form should, contrary to the former advice, be permitted to remain undisturbed in its placental attachment so long as any pulsation of the cord is apparent. It should be suspended by the heels for the twofold purpose of clearing the throat and upper air-passages of mucus and assisting by gravitation to overcome cerebral anemia.

From this point, as well as from the unrelieved livid form, already considered, the infant must be treated as if it were in a condition of shock, which indeed is the case. Rough measures will only extinguish the spark of life.

The indications are: First, to apply external heat. This is best done by immersion in water at a temperature of 100° F. Second, stimulate the respiratory center, the flagging circulation, the paralyzed muscular system, and abolished reflexes.

This brings up the recommendation of strychnine hypodermically to fulfil the indications. It is our most powerful remedy in surgical shock; it should be equally valuable in the grave form of asphyxia neonatorum. Its use for such purpose was suggested to the writer's mind eighteen months ago, and the result has more than met his expectations. The amount of the drug administered is  $\frac{1}{16}$  grain. On one occasion a nurse gave by mistake  $\frac{1}{8}$  grain to a premature infant delivered by version in a case of placenta previa. The infant was soon relieved of the asphyxia, but had pronounced spasmodic twitchings of the muscles, and died on the second day. It is uncertain whether the fatal termination was due to the drug, but the infant showed the toxic effect of strychnine in a decided manner.

After the administration of the strychnine accessory methods of treatment may be employed. Artificial respiration may be carried on while the child is in the hot bath. Sylvester's or Dew's method answers best under these circumstances. Jacobi has advised the rectal injection of hot water, and Grandin of hot normal salt solution. The latter might be given more effectively by injection into the subcutaneous tissue or directly into the vein.

*MERCUROUS IODIDE POISONING RESULTING FROM THE USE OF IODOFORM AS A SURGICAL DRESSING AND CALOMEL INTERNALLY.*

The *American Journal of Obstetrics* for April, 1898, has an article on this subject by SIMPSON, in which he details a case of poisoning from the causes named in the title. He thinks the following combination of events is worthy of note:

1. The use of an extensive intraperitoneal dressing of iodoform gauze representing about half an ounce of iodoform.
2. The development of symptoms of iodoform intoxication, showing the absorption of that drug.
3. The administration, forty-eight hours after operation, of seven grains of calomel.
4. The occurrence of numerous bloody mucous stools at frequent intervals and accompanied by tenesmus.
5. The subsequent use of calomel without undue effect, showing absence of idiosyncrasy to that drug.

The question naturally arises, Was there any causal relation between these phenomena? The following facts led the writer to believe that such was the case, and he has subsequently found no reason to change that opinion: The absorption of iodoform as a dressing begins at once and is most rapid from a peritoneal surface, less so from other surfaces. It continues as long as iodoform is in contact with the absorbing surface. Elimination begins within an hour, and its products—viz., iodide and iodate of sodium—can be detected in all the secretions. Calomel is likewise rapidly absorbed, and elimination by all the secretions begins promptly. Hence, if the two are being absorbed at the same time, they must be carried by the same media and must come in contact within the tissues and in the reservoirs containing the secretions. When calomel is added to sputum, urine, or feces containing the products of elimination of iodoform, yellow iodide of mercury is formed. In this case, granted the elimination of sodium iodide and iodate by intestinal secretions extending over a period of forty-eight hours; granted the retention of these products in the intestinal canal (for no movement had occurred and elimination is not complete for three days at least), together with the administration of seven grains of calomel by mouth, and the conclusions that the two drugs would come in contact and that the yellow iodide of mercury would result may be inferred.

Add to that the fact that characteristic symptoms of the drug were marked, and the conclusions are confirmed. The facts as above given justify the premises, and the conclusions are legitimate.

In addition to the above facts experimental evidence was sought, but lack of facilities for accurate observation rendered the results of little scientific value; hence only a brief summary is given. The first experiments were made in November, 1896; others in November, 1897. Eleven guinea-pigs were used.

*Group A.*—Five pigs received one grain iodoform hypodermically, and one grain calomel by mouth twenty-four hours later. Four died within twelve hours. Post-mortem examination showed violent colitis with extensive ulceration; small intestine slightly inflamed. Other pig killed; colitis, but not so violent.

*Group B.*—Three pigs given one grain iodoform; no deaths. Two killed thirty-six hours later. In one, whole intestine normal. The other had had one grain iodoform and one-sixteenth grain calomel five days previously; few small old ulcers in colon.

*Group C.*—Three pigs were given one grain calomel each by mouth. Two had had one grain iodoform each five days previously. These two killed at end of twelve hours; colitis and enteritis, but neither so marked as in Group A. Other pig died at end of a week; no post-mortem.

The experiments of M. Rummo and others, showing that iodoform is eliminated slowly, render it possible, at least, that yellow iodide of mercury might have been produced in Group C. Further observations as to the effect of these drugs, separately and combined, will be interesting and of practical value.

The absence of literature on this subject opens an interesting field for speculation. Is this form of poisoning rare? The common practise of using extensive iodoform dressings and of using calomel as a laxative following operation renders it likely that numerous opportunities are afforded for the reaction which results in the production of the yellow iodide of mercury. Has it been found by experience that small doses of calomel suffice, as a rule, to cause free movements, and hence small doses are given? May not this observation have been based upon the effects of the more powerful drug? Does not the small amount of calomel used limit the amount of the yellow iodide of mer-

cury produced, thereby lessening the probability of serious results? Is it not possible that in some cases, with mild symptoms of iodoform intoxication accompanied by slight enteric irritation following the use of small doses of calomel, the irritation has been attributed to the iodoform in compliance with the classification of Dr. Schede, of Hamburg, rather than to its true cause, the yellow iodide of mercury? Has it at times been attributed to an irritating enema? Has it ever been noted without an attempt at explanation? A satisfactory solution to these questions is earnestly to be desired.

[We doubt if enough yellow iodide of mercury could be formed in this manner to produce the symptoms described.—ED.]

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*THE INJECTION OF ARTIFICIAL SERUM  
AS A METHOD OF PREVENTING  
DEATH FROM EXTENSIVE  
BURNS.*

The serum employed by TOMASOLI (*Monatshefte für Praktische Dermatologie*, Bd. xxv, No. 2) is a solution of sodium chloride and sodium bicarbonate. In a sixty-year-old woman with an extensive burn of the third degree, injections of from three hundred to one thousand grammes of serum in three days did not prevent a lethal termination. In a second case, a young man twenty years of age, with burns of the first, second and third degrees, covering the entire right side of the chest, the right axillary space, the whole of the right arm, shoulder, back, and buttock, recovery took place. The patient received daily from March 13 until April 6 serum injections of from two hundred and fifty to five hundred grammes each, and on May 3 left the clinic in an improved condition.

Tomasoli experimented on animals. The hind legs of rabbits and dogs were burned or scalded by being immersed in water the temperature of which was gradually raised to 70° C. All animals burned in this manner died within thirty-six or forty-eight hours. Six rabbits of the same weight as those employed for comparison received injections of fifty grammes of artificial serum immediately after being burned. Four of them died within the first twenty-four hours; the remaining two continued to live. Ten dogs, burned as has been described, were daily injected with from one hundred and fifty to two hundred grammes of artificial serum. Only two of them died, and in these death occurred a few

hours after they were scalded. All test animals that did not receive serum injections died within the first two days, notwithstanding the fact that they were selected and kept in a practically identical condition with the other cases. The writer also states that if serum be taken from one of these scalded dogs (not treated by saline injection), or if from the flesh of one of these animals an extract be made, and a definite quantity of this serum or extract proportionate to the weight of the animal experimented upon be injected into a healthy dog, the dog will die. On the other hand, if a dog in practically the same condition as the other one be injected with artificial serum immediately after receiving a lethal dose of the extract, this dog will not die.—*Medical Record*, Jan. 29, 1898.

#### THE DANGERS FOLLOWING THE USE OF IODIZED PREPARATIONS IN TUBERCULOUS SUBJECTS.

Among the symptoms of iodism, remarks a writer in the February number of *La Clinique*, there are some that are localized in the lungs, and manifest themselves by cough with muco-serous sputum and by pains in the pleura. An abundant transudation of serosity has also been observed in the lungs of dogs which had been subjected to subcutaneous injections of iodine and an iodide in solution, according to Zeissl. These facts have led to the supposition that in certain cases of pulmonary tuberculosis the administration of the iodides may cause in the lungs a congestion and a process of softening which is very injurious to the patient.

Vitvitsky, of Kharkhow, observed a case which was very conclusive in this respect. The patient was a woman twenty years old who suffered from a cough with a prickling sensation in the throat and pain on deglutition; at the apices there were suspicious stethoscopic signs. However, the patient had no fever and her general health was excellent. A laryngoscopic examination revealed an intense congestion of the larynx and ulcerations of the vocal cords. As there was cause to suspect a syphilitic origin for this affection, ammonium iodide was prescribed in amounts of thirty grains a day. After eight days of this treatment the patient's condition was manifestly aggravated; the cough had increased, the temperature had become febrile in character, râles and a bronchial souffle were heard in the apices,

Koch's bacilli were found in the sputum, which before had been free from them, and galloping phthisis set in which terminated very soon in death.—*New York Medical Journal*, March 5, 1898.

#### ON THE NATURE AND PREVENTION OF PUERPERAL FEVER.

The *Birmingham Medical Review* for February, 1898, contains an article by THOMAS WILSON on this subject. He remarks that in women who have pathological discharges, preliminary treatment by warm vaginal douches during the two or three weeks before labor is of great importance. During the same time all women, but especially those just referred to, should be instructed to employ more than the usual care to secure the daily thorough cleansing of the external organs; for this purpose soap and water are the best applications. It may be observed that sponge, though generally in use, is the worst possible material with which to mechanically cleanse these parts; it soon gets full of foul putrefying dirt, which cannot be thoroughly got rid of. The use of sponges in pudendal ablutions should therefore be abolished, and in their stead pads of wool or tow, which can be burnt, should be recommended.

As soon as labor begins, the woman should be carefully prepared as if for an operation. If seen early enough an enema, which may consist of two pints of warm soap-suds, should be administered, so as to secure the thorough evacuation of the lower bowel. This proceeding not only has a marked effect in favoring the due and normal action of the uterus, but is also of great importance in preventing fouling of the vulva and perineum, and perhaps infection of a perineal tear later in labor. When the enema has acted, the nurse, or if necessary the medical attendant, should cleanse the vulva as carefully as if it were going to be operated upon. For this purpose it is desirable first to cut short the hair of the labia with scissors; the whole region, including the mons veneris and the inside of the thighs, is then well scrubbed with hot water and soap and a brush for three measured minutes; then with a wool swab, ether, spirit, or turpentine should be well rubbed into the same parts; and finally the chosen antiseptic lotion, 1-in-2000 mercuric chloride or whatever may be preferred, should also be well rubbed in with a swab. The last two pro-

ceedings should have three minutes divided between them. In all these proceedings great care should be taken not to miss any of the crevices and depressions which abound in the vulva, and the lower and easily accessible portion of the vagina should be attended to at the same time. After the enema and the cleansing the woman should put on clean clothes—those next the skin should be fresh from the laundry, and over these should be clean petticoats and dressing-gown, for as long as she is to walk about the room.

Among poorer women it is usual for an old and often abominably dirty skirt to be put on for the labor; it is perhaps superfluous to remark that it is part of our duty to bring about the abolition of this disgusting and dangerous practise. At no other time of her life is it so necessary for a woman to be clean in her own person and in all her surroundings as it is in childbed.

The important points in the second stage of labor are in the first place that it should neither be hurried nor unduly prolonged; and in the second place the proper management of the perineum. A vaginal examination is necessary at the beginning of this stage when the membranes rupture, and if all be found normal, then the course of labor may be sufficiently observed by palpating the abdomen from time to time, by watching the duration of the interval between the pains, and by observing the maternal pulse between the pains. The timely, but not too timely, use of the forceps in careful and skilled hands is important in many cases in preventing the exhaustion of the patient, which is conducive to infection. When the head comes down on to the perineum, this must be supported so as to prevent, as far as possible, laceration. In doing this a clean napkin should be placed over the perineum, to prevent the hand from contamination. At the end of the second stage the perineum should be carefully examined, and any tear that is more than superficial immediately sutured. For the purpose of this suture the best material is silkworm-gut, a few strands of which, together with a handled needle, should be found in every midwifery bag; catgut is of no use at all, and silk, on account of its absorbent properties, is much inferior to the fishing-gut. The suture of these tears where they are at all extensive is of the utmost importance in preventing both immediate infection and later pelvic suffering of various kinds. The writer states that he has been told in all good faith by medical brethren

that they have never met with a perineal tear in all their extensive midwifery practise. These gentlemen he recommends, in every case, to examine the perineum carefully at the conclusion of the second stage; they have been deceiving themselves.

In the third stage of labor our efforts must be directed towards insuring good and complete contraction of the uterus; the writer's opinion is that this is best insured by what is known as Cr  d  's method; at any rate it is necessary to secure good contraction in order that there may be no retention of clots. The placenta and membranes also must be examined after their expulsion to see that no portion is left behind in the uterus, to undergo putrefaction later on. At the conclusion of this stage, in cases where numerous internal examinations or where operative measures have been undertaken, an antiseptic douche should be given; in ordinary labors, as has already been said, this is superfluous. Finally an abdominal binder is applied, and is of use, from our present point of view, in keeping up intra-abdominal pressure and in preventing a negative pressure in the vagina, which will lead to the retention of discharges; such a retention would be most favorable to the growth of any micro-organisms that might be present; the discharges of albuminous material form a good medium, and the other conditions, moisture and a temperature of 99   F., easily lead to a flourishing cultivation.

In the puerperium the greatest care should be taken to insure the cleanliness of the external organs; these should be carefully cleansed twice daily with a warm solution of boracic acid, iodine, or any other antiseptic which may be chosen, used by means of a swab of wool, which is afterwards burnt. The same toilet is necessary after each evacuation of the bladder or rectum. In the intervals a pad of absorbent wool is the best dressing for the parts. The routine use of the douche during the puerperium is unnecessary and sometimes harmful; syringing should only be ordered in the classes of cases which have been already enumerated; the best material is a solution of iodine of the strength of a drachm of the liniment to the pint of water, and the douches should be continued for at least ten or twelve days. In every case where injections are considered necessary, they should be administered by the medical attendant himself, unless he can absolutely rely on the care and efficiency of the nurse.

Such is an outline of the principal points



which are of importance in preventing the infection of parturient women. The writer admits that there is nothing new in his remarks, and that the ground has been gone over many times before. The stubborn fact remains, however, that there are apparently still as many cases of puerperal infection among the general population now as fifty years ago, and so long as this is a fact he holds it to be the duty of members of societies to consider from time to time the principles and the practise, the science and the art, on which reliance is placed for the prevention of the disease. Towards this duty individuals may be impelled but feebly by the consideration of mere statistics; a death in one's own practise, very likely in a young and blooming primipara in the full vigor of womanhood, acts as a powerful incentive. How much more terrible a goad is an epidemic! It was the writer's lot in 1882 to be a resident pupil at a well known lying-in hospital at a time when an epidemic broke out, the last that has raged within its walls. Within ten days sixteen women, at least nine of them primiparæ, were attacked; twelve of the sixteen died, all of them in from five to twelve days after delivery. No words can describe the effect which this terrible visitation produced upon the pupils; the feeling of utter helplessness and hopelessness in the presence of the established disease can never be effaced from the writer's memory.

#### GASTRECTOMY.

The operation of the removal of the entire stomach, and anastomosis between the lower end of the esophagus and the duodenum, has been for the first time successfully performed in this country by Dr. Charles Brooks Brigham, of San Francisco, and the account of the case is published in the *Boston Medical and Surgical Journal* of May 5, 1898. As a surgical achievement this operation certainly takes rank as an operation of the first magnitude.

The fact that after the removal of the stomach, in animals of strong vitality, the nutrition might be maintained by the compensatory overactivity of the intestines was demonstrated by Czerny in 1876.

In 1895, Schuchardt, of Stettin, removed the entire stomach, except a very small portion at the cardiac end, and the patient lived a life of comfort and activity for two and a half years after the operation.

In September, 1897, Schlatter, of Zurich,

removed the entire stomach from a female patient, for cancer, and performed anastomosis between the esophagus and a loop of the upper portion of the jejunum, sewing up the divided distal end of the duodenum. The patient is now well and strong.

The success of Schlatter's case has undoubtedly inspired with emulation surgeons in all parts of the world, but the case of Dr. Brigham is, as far as we can learn, the first successful result reported.

Dr. Brigham's operation differs from that performed by Schlatter in that he was able to unite the lower end of the esophagus directly with the cut end of the duodenum, thus saving time, an element which is of paramount importance in so extensive an operation, and one involving so great danger from surgical shock. The good judgment of Dr. Brigham in recognizing that his patient would not bear the more time-consuming method of anastomosis by suture, and resorting to the Murphy button, was amply vindicated by the result. The disadvantages of the button as compared with suture were recognized by Dr. Brigham, as he states in his paper, but they were outweighed by the paramount necessity of saving time, and were not sufficient to prevent success.

Dr. Brigham's case is of great interest, as showing that in certain cases it is possible to join the duodenum to the intestine without undue tension. In the not infrequent cases in which the duodenum is lower than the normal position this would probably be impossible, and the procedure adopted by Schlatter of uniting the lower end of the esophagus to a loop of jejunum would be the only resort.

It is interesting to note from Dr. Brigham's account that the constitution, mental disposition and previous habits of diet of the patient were most favorable to the success of the operation. Of a quiet disposition and simple tastes, accustomed since the loss of her teeth to a liquid diet, such as she must of a necessity subsist on for a time after the removal of the stomach, she presented an ideal subject for the operation, except for one circumstance, the thickness of her adipose layer. Even this, although it necessitated a longer incision, may not have been entirely a disadvantage, as it must have tended to enable her to withstand low diet better than would have been possible for a thin, cachectic patient.

It is impossible in this brief notice to allude to all the points of interest in matters

of surgical technique, such as the fact mentioned that unless the left lobe of the liver were hypertrophied the operator would find plenty of room for manipulation in the sub-diaphragmatic space, or to the physiological points with regard to diet, etc., which are illustrated in Dr. Brigham's careful account of his remarkably successful case.

A brief consideration, however, will justify the deduction that cases suited to the operation are rare. It is certainly an uncommon experience for a surgeon to meet with a case of cancer of the stomach in as good physical condition as was Dr. Brigham's case. The pale, thin, worn, cachectic victims of this disease are seldom in a condition to withstand so formidable an operative procedure. Even in this case the operator was compelled to hasten his operation by employing a method of anastomosis which he would not otherwise have chosen.

Schlatter and Brigham have shown, however, that there exists a certain (probably small) proportion of cases in which resort to this most radical surgical procedure may for a time at least rescue the patient.

The time (two and a half years) which Schuchardt's patient lived after the operation proves that the prolongation of life may be by no means inconsiderable.—Editorial in the *Boston Medical and Surgical Journal*, May 5, 1898.

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*CASE OF REMOVAL OF THE ENTIRE STOMACH FOR CARCINOMA; SUCCESSFUL ESOPHAGO-DUODENOSTOMY; RECOVERY.*

In the *Boston Medical and Surgical Journal* of May 5, 1898, BRIGHAM reports an extraordinary case. He begins by telling us that the operation for removal of the stomach belongs to middle or old age, the disease necessitating it occurring at these periods. Where there are no adhesions the operation is not very difficult; with ordinary care hemorrhage is not likely to occur. The effect of surgical shock upon the patient is most to be feared, and should be guarded against by heat, stimulants, and quick work in operating. The Murphy button saves much time and has proved of great service in the present case. It is not always possible to do esophago-duodenostomy, and the button would do as well in esophago-enterostomy, for it could be applied where it would be impossible to make a sound suture, as in cases where the esophageal end is very

short. If, however, careful sewing could be done quickly and accurately over some form of tube that could be pulled out through the mouth when the sutures were placed, it would save considerable worry to the patient and surgeon. The cases could be well imagined which would be difficult to nourish for two weeks through the openings of a No. 3 button. Besides the impossibility of taking much nourishment at a time, there is the difficulty of swallowing, which the presence of the button in the esophagus causes by reflex action. This reflex action was very slightly marked in this patient; but with a more sensitive nervous system it might be enough to prevent swallowing sufficient nourishment to sustain life, especially if added to this it became impossible to retain nutritive enemata.

It would seem easy, from what is seen in anatomical plates, to join the duodenum with the esophagus, for apparently they are on the same plane; but in reality the esophageal orifice is on a higher plane and behind the pyloric orifice. If the duodenum is not bound down by adhesions, it can be approximated without much tension to within an inch of the diaphragm, allowing the abdominal part of the esophagus to be only two centimeters in length, which is Cruveilhier's estimate. There is even then room to place purse-string suture and apply the Murphy button. It would seem that tension on the elastic tissue of the abdominal esophagus would easily give an increased length; it does stretch to a certain point, but is disappointing and much more limited than one would suppose. From the experience which this case gives, the author thinks it would be easier to tear the esophagus than to pull it down from its opening in the diaphragm. It may have been that the esophageal clamp interfered with its elasticity, but it seemed at the time of the operation as if the stretching could be accomplished much more easily sidewise than lengthwise. A slight gain in the length of the esophagus can be made if the clamp is applied vertically instead of sideways; there is thus less chance of making an oblique cut in the division of the esophagus. Unless there is enlargement of the left lobe of the liver, there is much more room to work in than would be supposed, especially if the abdominal incision is a large one. In fat patients the incision can hardly be less than seven inches in length, and then there is no room to spare.

In the treatment of this case no attempt

had been made to predigest the nourishment which was given to the patient. The precaution was taken, however, to supply easily digested food; and when meat was allowed it was cut in very small pieces. The food was taken slowly, whether liquid or solid. It is no hardship for the patient to live on simple food, for she has done so all her life; and especially as age has advanced she has been obliged to eat food that required the least chewing. The food was given of medium temperature; water was taken as it came from the pipe and wine as it stood in the room; iced cream, of which the patient was particularly fond, was taken slowly, so that it dissolved in the mouth before it was swallowed. At first everything was too salt; as the patient got well, she wished salt on both eggs and oysters. The amount of flatus in the bowels was enough to cause pain only a few times in the early part of her illness. The urine has been normal throughout. Never since the operation has any undigested food been seen in the movements from the bowels, and for the most part these have been wholly or partly formed. The patient has vomited but a few times since the operation; twice after etherizations, twice after some laxative had been given, once after the button left its place, and twice after coughing—not more than six ounces at any one time, generally much less. On three or four occasions a mouthful of food would be regurgitated—an oyster, some shreds of meat, or a few teaspoonfuls of coffee. As a usual thing the food was well retained and well digested. Milk, which would sustain most patients under such circumstances, was not liked, and an important food was thus unavailable. The patient's skin is in a natural condition, without any dryness; this may be due to the thorough washing which the entire body has had daily since the operation. The symptom which gave the most anxiety after the operation was the restlessness, which was unusually marked. This was without doubt the result of the surgical shock, which was caused by the removal of so important an organ as the stomach, and the interfering with its vessels and nerves.

The season of the year in California, with mild, sunny days, and the careful and constant nursing, are among the factors which made the operation a success. The age of the patient counted for something also; the effects of the change of life had long passed by, and there had been for many years an even condition of good health. Many old

people can stand in a surgical point of view much more than is generally supposed. The patient was not worried about herself. All she wished for was to be restored to health; how this was to be accomplished she never asked, and to this day she does not know that her stomach has been removed. She has a fine color; complains of nothing so far as the functions of her body go; eats whatever she wishes; has no pain whatever; is of a very cheerful disposition. She is out-of-doors most of the day from ten till five o'clock, taking occasional walks around the hospital grounds; her temperature and pulse are normal; she sleeps well without an opiate. Although she has food every three hours, she feels quite hungry at times, and feels that she could eat twice as much as is given to her. She is gaining in weight; and her general condition at the present time (April 14), seven weeks after the operation, is satisfactory in every respect.

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*HYDRAULIC PRESSURE IN GENITO-  
URINARY PRACTISE, ESPECIALLY  
IN CONTRACTURE OF THE  
BLADDER.*

H. H. YOUNG writes on this subject in the *Johns Hopkins Hospital Bulletin* for May, 1898. He says that the necessary apparatus consists in an ordinary fountain syringe with tube about eight feet long, a conical nozzle which will fit tightly into the meatus, but not injure the urethral mucous membrane, and a pole or other apparatus by which the irrigating bag may be elevated or lowered as desired (a nail in the wall will answer the purpose).

The patient should lie on his back on a bed or couch which is covered by an oilcloth, with a basin between his legs. The operator stands on the right side, takes the penis between thumb and finger of his left hand, the sterile nozzle in his right. The foreskin is retracted, and with the bag elevated three or four feet, the fluid is allowed to play upon the glans penis and meatus. The urethra is alternately distended with fluid and emptied to clean the anterior urethra, and the nozzle is then crowded tightly into the meatus, the bag raised to an elevation of about seven feet, the penis being held just back of the corona so as not to compress the urethra, as Valentine's complicated nozzle and stop-cock are unnecessary.

The urethra will soon become ballooned out, and for a time the fluid will be seen to

stop flowing through the nozzle, but very soon the sphincters will give way and a "purling" sensation be conveyed to the hand by the fluid flowing into the bladder. After the sphincters are overcome very little pressure is required to force the fluid into the bladder, and it is best to lower to a height of four and a half or five feet, as too much pressure may produce spasm of the bladder and prevent dilatation.

As the fluid flows gently into the bladder the patient will soon experience a sense of fullness and then of gradually increasing pain.

In cases of contracture where systematic dilatation is to be adopted, the distention must be continued until the pain is very considerable and the patient tells you he cannot "stand any more." The tube is then squeezed to cut off the flow, the nozzle withdrawn, and the fluid, which is ejected with considerable force, caught in a half-liter glass or other receptacle.

The operation is repeated until the quart of fluid has been used.

The procedure is so simple that patients soon learn to conduct their own treatment. They always become intensely interested in the progress of the dilatation and vie with each other as to the amount of fluid and urine held.

Very bland fluids are the most satisfactory in the majority of cases. Best of all is Thomson's fluid, which is composed of borax, glycerin, sodium chloride, and water. It is the most soothing preparation for any inflamed mucous membrane that we know of. Boric acid in two-per-cent. solution is excellent.

A very good plan is to use occasionally a stronger antiseptic fluid, such as silver nitrate half a grain to one ounce, or bichloride of mercury 1 to 150,000 solution, up to 1 to 50,000. When four or five irrigations are given daily it is well to use one of these once daily, followed by a weaker solution.

Silver nitrate is especially effective where an ulcerative condition of the mucous membrane exists.

Boric acid or salol in five- or ten-grain doses may be given if the urine is alkaline, and citrate of potassium when hyperacidity causes much burning.

The reaction of the urine in cystitis depends almost entirely on the character of bacterium present, and it is irrational to attempt to change its reaction by internal drugs.

As shown in his cases, the urine becomes acid as the bladder inflammation begins to subside.

As in inflammation elsewhere, there is at first a proliferation and infiltration of round cells, which as time goes on become more and more spindle-shaped and finally form fibrous tissue. Ulcerative areas in the mucous membrane also lead to the production of scar tissue, with its inherent tendency to contract. The inflamed mucous membrane, irritated by the presence of urine, expels it frequently; the bladder is therefore never fully distended and offers no resistance to the contraction of the scar tissue, and contracture results. In this process the blood-supply of mucosa is greatly interfered with, and the mucous membrane is thrown into folds and pockets which retain the purulent exudate, thus adding to the inflammation.

The effect of forced dilatation with fluids is probably as follows:

Irritating secretions are washed away.

The individual bundles of fibrous tissue are separated or loosened, allowing increased vascularity.

Folds and pockets of mucous membrane are smoothed out; ulcers are stretched and cracked, allowing new blood-vessels to grow out, in precisely the same way that leg ulcers are cured by scarification; the bladder muscle is exercised and the tone is improved; the mucous membrane, cleaned, stretched, and with increased vascularity, is given a chance to throw off the inflammation.

In a normal empty bladder the epithelium is several layers thick, but when fully distended is said to be only one layer thick. Dilatation of an inflamed bladder therefore gives the antiseptic fluids a better chance to reach the disease.

A review of the author's cases shows:

That it is possible to restore the capacity of a bladder contracted by chronic inflammation of the worst character by systematic distention by hydraulic pressure.

That such dilatation has a most beneficial effect on the vesical inflammation and muscular tonicity.

That the number of urinations daily may thus be greatly diminished.

That no ill effects are produced by considerable hydraulic pressure, and there is no danger of infecting the kidney.

One of the most striking features of the treatment is the rapidity with which patients improve. Pain present for years may disappear in a few days, pus and mucus diminish

markedly, and strongly ammoniacal urine becomes acid in a short time.

And yet, says Young, a late text-book on genito-urinary disease says as follows: "The theory that the capacity of an inflamed bladder can be increased by dilatation is contrary to physiology and anatomy. To attempt by forced injections to relieve frequent micturition cannot be too strongly condemned."

#### NEW AND ORIGINAL METHOD OF OSTEOPLASTIC RESECTION OF THE SKULL.

A satisfactory method of osteoplastic resection of the skull has long been desired. BUCHANAN believes, so he tells us in the *Medical Record* of June 4, 1898, that the procedure here described will be found to have advantages over those hitherto employed. Among these may be named the following:

1. It causes very little injury to the bone.
2. It is not attended by jarring or other possible injury to the brain.
3. It is free from danger to the dura mater.
4. It is precise in its results and the flap is capable of any required variation of shape.
5. The bone flap, when returned to place, fits exactly and has no tendency whatever to displacement.
6. It is easy and comparatively rapid of execution, causing no fatigue to the operator.
7. The instruments are simple, inexpensive, not liable to break or get out of order, and are not dependent on a motor of any kind.

The elements of the method are: (1) The selection of a flap suitable to the requirements of the case, usually in the form of a quadrangle, pentagon, or hexagon; (2) incision to the bone on all sides except at the base of the flap; (3) perforation of the cranium at each angle of the incision with a small mastoid trephine; (4) separation of the dura mater from the cranium between the points of perforation; (5) sawing the bone between the perforations with a Gigli-Haertel wire saw, passed between the bone and dura mater from one perforation to the next; and (6) lifting the flap of scalp and bone from the dura mater.

The instruments required are:

1. Those shapes most generally useful for outlining the flaps. These are pentagons or hexagons, usually with sides five centimeters long. These shapes are of aluminum or

double-faced rubber cloth, either material being capable of sterilization without injury.

2. A slightly conical trephine six millimeters in diameter.

3. A dural separator three millimeters wide, blunt extremity slightly wider and thicker, grooved upper surface, very slightly curved from end to end, turning rather abruptly upward at each extremity. The shape is important. The length between the curves at the extremities is five centimeters.

4. Gigli-Haertel wire saws, thirty centimeters long. This is the instrument the use of which distinguishes this procedure from those hitherto proposed.

5. Small blunt hook to lift the loop of the saw from the trephine opening.

6. The bone elevators.

In selecting the shape and direction of the flap, regard should be had for the area it is desired to uncover and the location of the vessels of the scalp entering its base. A distance of five centimeters between openings will usually be found most convenient, although longer intervals may be separated and sawn without trouble. Impromptu and atypical outlines may be used, but ordinarily a set figure, selected beforehand, will be most satisfactory. The pentagon may be made to form several different flaps by using different sides for the base and by reversing the figure.

An incision having been made to the bone along all the sides of the figure laid out except its base, trephine openings are made at each angle in the usual manner. The small size of the trephine renders this a very easy matter. The dural separator is now passed into one of the openings and, by gentle lateral movements, made to separate the dura mater from the skull till its extremity can be seen at the bottom of the adjoining opening.

In case the skull is thick, it may be necessary to chip away, with a chisel, the perpendicular edge of the trephine hole into which the separator enters at that part of its circumference which is opposite the opening toward which it is directed. This allows the separator to enter obliquely to the surface and easily follow the surface of the dura mater. In thin skulls this will be found unnecessary.

When the end of the separator appears at the bottom of the adjoining opening, a wire saw is passed along its groove till the looped extremity of the saw appears at the bottom of the trephine opening, through which it is

drawn with the blunt hook. The handles of the wire saw are then attached and the separator is held in place by an assistant, who at the same time steadies the head. The saw is then made to cut its way out, which it does with surprising ease. Any possible injury to the dura is obviated by retaining the separator in place during the sawing; but no injury has been observed even when the dura has been left unprotected. During the sawing the hands should be kept well apart, for the saw is apt to break if used at an acute angle.

This proceeding is to be repeated with all sides of the flap except the base, which can be sawed nearly through without injury to the overlying flap.

The elevators are used to pry the flap up, and very little force is required to break the unsawn portion at the base.

When the flap is returned, it fits precisely and cannot possibly be displaced. The only loss of bone is at the trephine openings, while between the sawed surfaces a sheet of paper cannot be passed.

It is hoped that an extended clinical trial may prove this method as satisfactory as it has been in numerous experiments on the cadaver.

#### CUT-THROAT: ITS IMMEDIATE TREATMENT.

DUNCAN writes on this topic in the *Inter-colonial Medical Journal of Australia* of March 20, 1898. He thinks that the sort of rigid conservatism that has hitherto guarded this particular state, in directing a particular method of procedure, promises soon to be supplanted by a plan more in accordance with modern ideas. That a cut-throat should be dealt with by immediate suturing is largely due to Mr. Morris, the able Middlesex surgeon. It would serve no useful purpose to give the reasons that governed the old-fashioned treatment. The only wonder is that such antiquated ideas should have held their place for so long, and especially during the last few years, when so much surgical enlightenment has prevailed. An excellent opportunity was afforded lately of putting the immediate treatment of cut-throat into practise, and noting the result.

The patient, a blacksmith, a patient of Dr. Lines, of Woodend, inflicted a severe gash on his throat with a dirty pocket-knife when under the influence of drink. The wound in front was slightly below the cricoid cartilage, and practically severed the windpipe, it being

only held together by a small piece behind. Laterally, the wound extended on each side nearly to the carotid sheaths, but not to within a dangerous distance. The patient on admission to the hospital had lost a great quantity of blood, and was a good deal collapsed. He was known to be the subject of chronic alcoholism in its worst form, and was therefore not a very promising patient from a constitutional point of view. The writer assisted Dr. Lines in treating the wound. A stout needle, threaded with strong salmon-gut, was run through the severed windpipe from below upwards. The needle was made to transfix the parts about a quarter of an inch from the severed edges. One median and two lateral sutures were used. On tying the sutures, the severed part came easily into apposition. As an additional security, similar sutures were made to under-run the soft parts, overlying the upper and lower segments. The windpipe was then covered in with the neighboring soft parts, buried sutures of catgut being used for the purpose. The wound was finally closed with stout salmon-gut, and a small drainage tube inserted at the lower angle. The upper two-thirds of the wound healed by first intention, and very slight suppuration occurred at the lower part, not sufficient, indeed, to materially delay the healing of the wound. The patient was discharged at the end of a fortnight with the wound soundly healed.

It is needless to add that every effort was made to render the wound as far as possible aseptic. This was all the more necessary, since the wound was inflicted with a dirty pocket-knife, as already mentioned. It is not to be expected that the results attained in this case would be attainable in all cases, but treatment based on such lines is certainly calculated to yield much better results than by the older and more antiquated methods.

#### RECENT PROGRESS IN RENAL SURGERY.

The advances which have been made in recent years in surgery of the brain and the bowel are perhaps the most striking manifestations of the modern progress of surgery, but improvements of at least equal importance have taken place in the methods of surgical treatment of the kidney. In *The Lancet* of April 30 was published the last of the Hunterian Lectures on the "Surgery of the Kidney" which Mr. HENRY MORRIS has recently delivered at the Royal College of Surgeons of England, and every one who has

read these lectures must acknowledge the great importance of the subject with which they deal.

Renal surgery is altogether modern. Abscesses in connection with the kidney had been occasionally incised, but only when they had so closely approached the surface that they were pointing, and the surgeon was doubtless greatly surprised to find that he had operated on a kidney. In the same way, too, renal calculi may have been removed after incision of a presenting pyonephrosis. These cases, however, are really not worthy of being considered cases of renal surgery at all. Further, it is true that in the sixteenth century the practicability of nephrotomy was discussed, but no application of these theoretical possibilities was ever made.

In 1869, Gustav Simon, of Heidelberg, removed a kidney from a woman with great success. This is the first real operation on the kidney. The possibility of life continuing in the absence of one kidney had been amply demonstrated by experiments on animals, but Simon's success was needed to convince surgeons that the same fact was true as regards human beings. The simpler operation of nephrotomy was, however, the renal operation which met with the greatest recognition, and it was performed in no small number of cases for the relief of pyonephrosis, and in a few of these a stone was removed. It was, however, not then recognized that there was an earlier stage than pyonephrosis in which surgical interference might be of advantage.

In 1880 Mr. Morris cut into the apparently healthy kidney of a young woman and removed from it an oxalate of lime calculus. This was indeed a notable advance; it showed most conclusively that a thick layer of renal tissue could be cut through without any fear of uncontrollable or even severe hemorrhage, and that a wound of the kidney substance healed readily and thoroughly. But it showed much more than this: it showed that it was absolutely unnecessary to wait until a renal calculus had led to the complete destruction of a kidney before attempting to remove it, and that it was not only possible but safe to remove a stone from a kidney otherwise equally healthy. The example thus set has been regularly followed and the results have fully justified this alteration in practise. In Mr. Morris' own cases of nephrolithotomy only one death occurred in thirty-four operations. The effect of this change of practise has been great, and as a consequence the operation of nephrolithotomy has largely re-

placed the simpler but less satisfactory nephrotomy in all cases in which the patient has applied for treatment sufficiently early.

Another operation which has done less perhaps than nephrolithotomy in the way of saving life, but quite as much in removing pain and discomfort, is nephropexy, or nephrorrhaphy, as it is frequently called. A movable kidney has but little tendency to shorten life, yet it leads often to much suffering and may entirely incapacitate for any exertion, and in many cases the relief resulting from nephropexy is great and lasting.

The latest development of renal surgery is of especial interest. When a kidney has been exposed by an incision it is occasionally found that the disease with which it is affected is limited to one part of the organ, and in a few cases it has been found possible to remove with success the affected parts only and thus to preserve a portion of an organ which otherwise would have had to be altogether sacrificed.

If the recent advances in the surgery of the kidney have surprised those accustomed to the old order of things, the modern surgery of the ureter excites still more astonishment. Numerous operations are now performed on the ureter, a structure which was quite recently considered to be wholly beyond the possibility of surgical interference. The first and probably the most important operation performed was ureterotomy for calculus, and though the operation is still rare, yet it has been done by several surgeons, and stones have been successfully removed from all parts of the ureter—from the pelvis of the kidney to the opening into the bladder. Strictures of the ureter have been relieved by ureterotomy, and in some cases a portion of the tube has been excised with results which fully justify the operation. Ureteral anastomosis and ureteral grafting have received much attention in consequence of the frequency with which the ureter is involved in the operation of vaginal hysterectomy. Formerly the only hope which could be held out to a patient suffering from a ureteral fistula after such an operation was nephrectomy, but ureteral anastomosis and grafting bid fair to replace entirely this severe procedure. A still more extensive operation on the ureter is excision. It is only called for in cases of wide-spread and persistent diseases, but it has been successfully performed for tuberculosis and other conditions of the ureter.

Another subject considered by Mr. Morris

in his lectures was "obstructive anuria." It is very rarely indeed that both ureters are simultaneously or almost simultaneously blocked by calculi. In most cases one kidney has been destroyed or rendered functionally useless by a stone, and then later, when the other kidney has taken on the double duty, it too has had its ureter blocked by the impaction of renal calculus. The symptoms which follow are identical with those met with after experimental ligation of both ureters in animals, and usually the symptoms which are commonly called "uremic" are absent. The patient survives a few days, perhaps as many as ten, and then dies. The fatal ending is inevitable unless the obstruction is removed. It has taken many years for it to be generally recognized that obstruction of the intestines cannot be cured by the lavish administration of purgatives, and that the obstructing cause must be removed or the bowel opened above the obstruction. In the precisely analogous case of obstructive anuria diuretics and exercise are still only too often relied on for treatment, and the patient is allowed to succumb when an operation would have saved him. It is true that the percentage of spontaneous removal of the obstruction is greater in the case of the ureter than in the case of the intestine, but the principles involved are the same and an operation should be performed as soon as the diagnosis is established.

The lectures were illustrated by an elaborate set of tables of operations on the kidneys which must prove of great value in the preparation of statistics on this subject.—*The Lancet*, May 14, 1898.

*A METHOD OF EXPOSING AND OPERATING ON THE KIDNEY WITHOUT DIVISION OF MUSCLES, VESSELS, OR NERVES.*

In the London *Lancet* of May 14, 1898, MAYO-ROBSON describes an important method of operating on the kidney, and tells us that his lamented friend, the late Greig Smith, used to insist on the importance of opening the abdomen in the course of the muscular fibers as much as possible so as to avoid the weakness that is apt to follow on division of muscle; but the author can find no evidence in his own writings, nor did he gather in his many conversations with him, that he had conceived the idea of exploring the kidney on this principle. Dr. McBurney's method of

exposing the vermiform appendix, which the author has employed on numerous occasions with great satisfaction, suggested to his mind the possibility of exposing the kidney in a similar manner, and it was not until he had performed a number of operations by the method he is about to describe that his attention was drawn to a paper by Dr. Abbe in the *Transactions of the New York Surgical Society*, in which he describes a case of nephrectomy performed on the same principle. Seeing that the operation is one which from ample experience he has found of great utility in all operations on the kidney, he has no hesitation in describing it and recommending it to the notice of other surgeons.

The incision beginning on the inner side of the anterior superior spine of the ilium is carried backwards obliquely towards the tip of the last rib. The fibers of the external oblique and its aponeurosis are then split and retracted, exposing the internal oblique muscle, the muscular fasciculi of which are split in a line between the ninth costal cartilage and the posterior superior spine of the ilium, in which position they are longer than in front of or behind that line. When the fingers are pushed through the internal oblique to split it the fibers of the transversalis are pierced and can be retracted along with the oblique muscle. A diamond space is thus formed, at the bottom of which is seen the transversalis fascia, which is then incised, exposing the perirenal fat, and on pushing the fingers through this the kidney is easily reached in whatever position it may lie. If needful the whole hand may be introduced into the perirenal space and the kidney can be grasped and freely manipulated, the retractors for the moment being withdrawn. If the vessels are moderately long, and in all cases of movable kidney, the organ may be brought through the wound and explored by incision or by needling, or it may be examined by the selenium screen and the Roentgen rays. Should a calculus be found it can be extracted and the wound sutured before the organ is returned.

After all necessary manipulations on the kidney have been effected, the kidney, if not removed, is replaced, or if not disturbed from its bed is left *in situ*. The cavity is then sponged out, and on withdrawing the retractors the muscles at once fall together and may, if thought desirable, be sutured with two or three interrupted catgut sutures, the skin incision being brought together by interrupted silkworm-gut sutures. As a rule,



not a single ligature is required, as there is no bleeding.

The advantages of this method of exploring the kidney are obvious: (1) There is no division of muscle and therefore no weakening of the abdominal wall immediate or remote. (2) No vessels are divided, thus not only saving time but rendering healing *per primam* more likely. (3) No nerves are severed, and therefore paralysis of the rectus and other muscles is avoided. (4) The operation is done with the patient lying on the back, to the great convenience of the anesthetist, the operator and his assistants, and to the manifest advantage of the patient, who is saved much unnecessary disturbance. (5) The great saving of time as well as the diminution of hemorrhage means lessening of shock, thus rendering operation feasible when it otherwise might be questionable. (6) It is an important fact that diagnosis in kidney cases, especially in renal calculus, is by no means perfect, and if it can be proved that an exploration of the kidney can be done quickly with little or no danger and without any subsequent weakness being left, the physician will be less loath to permit, and the surgeon to perform, an exploratory operation after all other means have been fruitlessly tried. (7) Lastly, after such an operation convalescence is materially shortened, as the patient may be safely allowed to be up at the end of the second week or even earlier, since there is no fear of the wound giving way.

The author takes this opportunity of saying that wherever he can, when operating away from the middle line of the abdomen, he makes use of the principle of splitting instead of dividing muscles—for instance, in gastrostomy, in inguinal colotomy, in typhlotomy, sometimes in cholecystotomy, and nearly always in the removal of the vermiform appendix. He would also point out that if it be found necessary to extend the opening—for instance, in case of operation on the ureter—deeply in the pelvis, it is easily accomplished by departing slightly from the principle here advocated and dividing the deep plane of fibers and further splitting the external oblique towards Poupart's ligament. The internal oblique will then require suturing to bring together the divided edges. In this way the ureter, even to its entrance to the bladder, may be fully exposed to sight as well as touch, as in a case which was witnessed by his colleagues, Mr. Teale and Mr. Ward, who will, he feels sure, bear him out

in his statement as to the efficiency of this method of exploration. He could relate a greater number of cases on which he has operated, but thinks that those he has given will be sufficient to serve as examples.

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## Reviews.

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TWENTIETH CENTURY PRACTICE. An International Encyclopædia of Modern Medical Science. Edited by Thomas L. Stedman, M.D. In 20 volumes. Volume XIV: Infectious Diseases.

This fourteenth volume, which is in size and shape like its predecessors, covers about 600 pages, including the index, opens with an exhaustive article by Forchheimer, of Cincinnati, upon Scarlet Fever, and ends with one by Bruce upon Malta Fever. The index strikes us as being better than that in some of the preceding volumes, in that it is more complete. Dr. Forchheimer's article covers 114 pages and deals with the history, geographical distribution, etiology, bacteriology and symptomatology of this important disease in a manner which is familiar to those who have read Dr. Forchheimer's previous contributions to medical literature.

Dawson Williams, of London, so well known for his editorial work, contributes the next article upon Measles, a considerable portion of which is devoted to the important subject of prophylaxis, and in this connection a copy of a handbill issued by the Glasgow Health Committee is of interest. Dr. Forchheimer also contributes the article upon German Measles, and Dillon Brown, of New York, that upon Chicken-pox.

The article upon Whooping-cough is by Joseph O'Dwyer and N. R. Reed, of New York, and considering the importance of this disease and the fact that it is written of by two men, the discussion is extraordinarily brief, covering less than twenty-three pages, a considerable portion of which is curiously enough devoted to the subject of intubation as a means of relieving the spasm of the glottis. Antipyrin seems to remain the most popular drug in the treatment of this condition.

Cholera Infantum is discussed by Dr. Jacobi, and the article is written in a way which is extremely characteristic. It is hardly necessary to state that this is an authoritative paper upon the subject of which it treats.

Asiatic Cholera is discussed by Theodor Rumpf in an exhaustive article of about

150 pages, with a fairly complete bibliographical list. A considerable portion of this article is devoted to the important subject of treatment. No less an authority than Sir Joseph Fayrer writes upon Dengue, and Sodné, of Rio Janeiro, upon Beriberi. Malarial Fever is discussed by Netter, of Paris, and the concluding article upon Malta Fever is by David Bruce, of the British Army. This volume is one of the best of the series.

A TEXT-BOOK OF DISEASES OF THE KIDNEYS AND GENITO-URINARY ORGANS. By Professor Dr. Paul Fürbringer. Translated by W. H. Gilbert, M.D. In two volumes. Volume II.  
London: H. K. Lewis, 1898.

The first volume of this work was reviewed in 1895, and in the three years which have elapsed since that time we have been wondering when the second part would appear, for much of the value of a work depends upon the promptness with which it is published as a whole; and this second volume is a translation of what its author wrote a number of years ago. Notwithstanding this fact the complete work is to be considered as a first-rate summary of our knowledge of genito-urinary diseases.

The present volume deals with pyelitis, perinephritis, nephrolithiasis, and the various tumors and abnormalities of the kidneys in the first one hundred pages. The next fifty pages are devoted to diseases of the bladder, and the remainder of the volume, which covers about 300 pages, is devoted to diseases of the urethra in the two sexes and to diseases of the genital organs as they are met with in the male. A noteworthy part of the book is the copious references made by the author to standard writers upon the subject with which he deals; and the volume closes with a good bibliography, which covers about twenty-three pages. The index to both volumes is included in this one. Certainly those who have the first volume should possess themselves of the second, for it is larger, better, and more interesting than the first.

ILLUSTRATED SKIN DISEASES. An Atlas and Text-book. With Special Reference to Modern Diagnosis and the Most Approved Methods of Treatment. By William S. Gottheil.  
New York: E. B. Treat & Company, 1897.

We are told in the announcement of this pictorial review of skin diseases that it is an attempt to depict on paper and preserve permanently the varied and evanescent forms of skin diseases, and that as photography gives us form but not color, chromolithography has been resorted to to make the study of dis-

eases in text-books more clear. The publishers believe that the strides which have been made in colored photography within the last year or two render it possible to produce a series of lifelike plates. This Atlas is to consist of quarto portfolios, each comprising twenty-five quarto pages of text and four plates, and in addition numerous black and white illustrations. Twelve portfolios will it is expected complete the work, and three of these have so far been published, the first dealing with the Anatomy and Physiology of the Skin; the second with the Therapeutics of the Skin, Classification and Functional Disorders, such as pruritus, hyperidrosis, chromidrosis, and bromidrosis; while the third portfolio deals with Seborrhœa and various other diseases associated with the oily secretions of the skin, and with Erythema, Urticaria, and Purpura.

The text is well printed and the plates have a handsome appearance. The illustrations, made by the Photogravure and Color Company of New York, are unusually good, for they possess that lifelike tint which is so difficult to obtain in works of this character and upon which the diagnosis so largely depends.

The opening article upon the General Therapeutics of Skin Diseases in Portfolio II seems to us well written, and the entire work is worthy of the confidence of the profession.

A MANUAL OF GENERAL PATHOLOGY FOR STUDENTS AND PRACTITIONERS. By Walter Sydney Lazarus-Barlow, B.A., M.D.  
Philadelphia: P. Blakiston, Son & Company, 1898.

The author tells us that he has endeavored to fill, in some degree, a lacuna in the modern literature of Pathology, and to those who are familiar with this literature it would seem that there was either no lacuna to fill or that it was so small that a small amount of material would cause it to overflow. On the contrary, the author seems to have found a very large open space which needs to be filled, for his volume is an octavo of nearly 800 pages, fairly closely printed, and supplied with a bibliography at the end of each important chapter. His chief object in writing the volume has been to present the reader with the results of the study of experimental or general pathology which he thinks have not received the attention they deserve. A large amount of information in the volume is taken from Cohnheim's Lectures in General Pathology, and also from the System of Medicine edited by Allbutt.

From what has been said it is evident that this volume is not intended to be a work upon Pathology in the ordinary sense of the word. On the other hand, it is a story of what has been accomplished by pathological research in explaining and amplifying our knowledge in regard to gross pathology. A chapter which has seemed to us of great interest is that devoted to the Pathology of Heat Government, a chapter which in most books upon Pathology is sadly lacking. This chapter is, however, not as thorough as it should be. Naturally such a chapter must deal largely with physiological facts, for the line drawn between heat processes as they occur in disease and in health is, of course, very indistinct.

The book seems to us to be eminently suited to the needs of the physician who desires to keep himself in touch with the modern knowledge of disease, but not to be adapted to the necessities of the undergraduate student.

AN ATLAS AND ABSTRACT OF DISEASES OF THE LARYNX. By Dr. E. Grünwald. Edited by Charles P. Grayson, M.D.  
Philadelphia: W. B. Saunders, 1898.

The editor's preface states that if it is true that "good wine needs no bush," it is certainly true that so good a book as this needs no preface. Unlike other books in this series, it opens with no less than 103 pages of text devoted to the various pathological conditions which are found in the larynx, and this text is followed by forty-five plates and figures which illustrate these conditions. Here again the skill of the Bavarian lithographer is shown in the lifelike portrayal of healthy and diseased tissues. The book is to be highly recommended to those who are interested in laryngology as a specialty or in diseases of this portion of the body in their relation to general medicine.

DISEASES OF THE STOMACH. By Max Einhorn, M.D.  
Second Edition.  
New York: William Wood & Company, 1898.

Within the last few months no less than four volumes devoted to diseases of the stomach by different authors and publishers have been placed upon the American book market, two of them, one by Hemmeter and the other by Van Valzah, appearing for the first time. The others are new editions of older and more familiar works. It will be remembered that Dr. Einhorn has done exceedingly good original work in studying gastric disorders and that he contributed a

valuable article to the Twentieth Century Practice of Medicine upon this subject, an article which was very nearly related in every respect to the first edition of the work now under notice.

The present volume does not materially differ from the first, which appeared a little over a year ago, but few alterations and additions having been made to it. It shows from beginning to end that the author is familiar as an original worker with his subject. It does not profess to be so exhaustive a manual as the three that we have named, but it will give the practical physician pretty much all the information that he needs in this special line of work.

MODERN GYNECOLOGY. A Treatise on Diseases of Women. By Charles Bushong, M.D. Second Edition, Enlarged and Illustrated.  
New York: E. B. Treat & Company, 1898.

The publishers in a note to this book, which is the first text which our eyes meet, inform us that this book is designed to tell the physician "what to do and how to do it," and the editor tells us in his preface, dated May 2, 1898, that he has remodeled the chapter on Neoplasms in the Special Organs of Women, and entirely rewritten that upon Malignant Disease of the Female Genitalia. To those who are not acquainted with the first edition we may state that the volume contains 105 illustrations and 18 chapters, which deal with Examinations, Menstruation and Its Disorders, Diseases of the External and Internal Female Genitalia, Hygiene, Exercise, and Sterility. The volume closes with an appendix describing instruments and office apparatus, which to many practitioners will prove a useful chapter even though it is exceedingly brief. Altogether the volume contains about 400 pages, which are written in an easy, yet concise, manner. It will not be found a complete treatise upon Gynecology. It is rather to gynecology what a book upon minor surgery is to general surgery, and as such it is deserving of confidence.

YELLOW FEVER. Clinical Notes by Just Touatre, M.D.  
Translated by Charles Chassaing, M.D.  
New Orleans: *The New Orleans Medical and Surgical Journal*, 1898.

It is explained to us in the translator's note that this volume has not been published in French, but that its author, having a better knowledge of the French language than of English, wrote it in French, and had it translated. The object of the volume is to present in a concise form the author's personal views in regard to this serious malady. For this

reason a description of a number of cases is to be found throughout the text. He asserts that he was one of the first to note the curious difference between the pulse and the temperature in yellow fever, and he believes that the importance and value of this difference are of the highest order in enabling the physician to make a positive diagnosis on the first or second day of the disease. In the seventh chapter, which is devoted to the consideration of the treatment of yellow fever, the author deals first with prophylaxis and then with the ordinary medicinal and hydrotherapeutic measures which he believes are of value. He believes that bicarbonate of sodium is a very useful remedy in this malady, and relies largely upon full draughts of Vichy water in addition to other treatment more commonly described.

**AIX-LA-CHAPELLE AS A HEALTH RESORT.** By a number of German Physicians of Aix-la-Chapelle. Translated by James Donelan, M.D.  
London: J. & A. Churchill, 1892.

Why this book should have been sent to us so long after the date of its publication we do not understand, unless it is in the way of advertising the springs of which it treats. We notice that a complete list of the various physicians practising in Aix-la-Chapelle is enclosed with the volume, and that the list is completed by the names of the German and American dentists who can be consulted. Although it is largely, therefore, in the nature of an advertisement, this book of over 300 pages nevertheless is one of value and interest to those who have occasion to send their patients abroad. The book contains chapters, first, upon the baths themselves, and second, the diseases treated with success by these baths, including gout, rheumatoid arthritis, diseases of the skin, various catarrhal conditions, syphilis, diseases of the nervous system, diseases of the eyes, and chronic metallic poisoning.

**RHEUMATOID ARTHRITIS.** By Gilbert Bannatyne, M.D. F.R.C.P. (Ed.). Illustrated. Second Edition.  
Bristol, England: John Wright & Company, 1898.

As if to emphasize how little we really know about rheumatoid arthritis and kindred lesions, the medical profession is presented from time to time with monographs dealing with this remarkable malady, and after we have read them we are forced to reach the conclusion that but little real advance has been made in our knowledge of its etiology, pathology, and therapeutics. A noticeable thing

about this little book of two hundred pages is the unusually good illustrations, many of which cover an entire page and which show the swellings and other arthritic deformities characteristic of the disease. These are unusually well represented and are taken from life. It is interesting to notice how the fusiform deformities of rheumatoid arthritis may resemble the dactylitis syphilitica of the older writers. Most of the chapters have appended to them brief but apparently valuable bibliographies, and the volume closes with an index of authors and of subjects.

The author endeavors to substantiate his claim that Wohlmann and himself have discovered the micro-organisms which are specific to this disease, and he takes pains to elucidate their life history and peculiarities as worked out by Bloxall. Because of his belief in the bacteriological origin of this disease Dr. Bannatyne is most emphatic in separating senile arthritis from the more general disease rheumatoid arthritis.

**OUTLINES OF PRACTICAL HYGIENE.** By C. Gilman Currier, M.D. Third Edition, Revised and Enlarged.  
New York: E. B. Treat & Company, 1898.

This is a small octavo volume of nearly 500 pages devoted to Hygiene, as its title indicates. It is rather an essay upon this subject than a text-book, which advocates scientific study of our knowledge of this important subject. Indeed, it is so much in the form of an essay that it does not seem particularly well suited for class work. On the other hand, the manner in which it has been compiled renders it a useful volume for collateral reading both in medical schools and in the advanced work of the ordinary literary institution. Some of the illustrations, as for example the one showing the typhoid bacillus and those of cholera and tetanus, are very indefinite and almost laughably minute, that on diphtheria, for example, being about a quarter of an inch square.

**AN ATLAS OF LEGAL MEDICINE.** By Dr. E. Von Hofman.  
Philadelphia: W. B. Saunders, 1898.

This German Atlas has been translated and edited by Dr. Frederick Petersen, of New York, and Dr. A. O. J. Kelly, of Philadelphia, and is a valuable contribution to the subject of which it treats. The medical reader of to-day is advantageously placed in that it is possible for publishers to provide illustrations of so true and natural a character as to make them of distinct value for medico-legal work. The illustrations, both

in black and white and in colors, are exceedingly good; only in a few instances do we find figures in which too much color is applied, as on Plate 45, where a stomach from a case of cyanide of potassium poisoning is illustrated. A very interesting illustration is Fig. 127, which shows a suicide perpetrated by a shot from a hunting rifle with a spreading ball. The spreading ball blew the head into an unrecognizable mass. There is no regular text in the volume, except that which serves to render the illustrations clear and useful—that is to say, each illustration is accompanied by complete descriptive text on the opposite page.

A SYSTEM OF MEDICINE. Edited by Thomas Clifford Allbutt, M.D. Volume VI.  
New York: The Macmillan Co., 1898.

As we pointed out in regard to the earlier volumes of this System, there is a pleasant impress of personality on the part of the editor throughout, and in his preface in the present volume, which is written as if he were writing a personal letter of explanation to each individual subscriber, we are told how it is that certain articles, notably that of Professor Welch, of Baltimore, have been unavoidably detained, and will therefore have to appear in the last volume of the System. This we presume will be numbered Volume VII, although it is referred to by Dr. Allbutt in his preface as Volume VI, although again the present volume is imprinted on its back and on its title page as Volume VI. It is only fair to state, however, that the inaccuracies and confusion which have existed in regard to the numbering of the volumes are the chief inaccuracies of the entire series.

The present volume deals entirely with diseases of the respiratory organs, namely, bronchitis, bronchiectasis, pneumonia, phthisis pulmonalis, pneumoconiosis, pulmonary aspergillosus, emphysema of the lungs, asthma and hay-fever, and syphilitic diseases of the lungs. We have turned with particular interest to the articles upon pneumonia and hay-fever. In the treatment of pneumonia the sensible statement is made that we cannot cut short the disease at the present time. After directions as to the necessity of keeping the bowels moving and the resort to ordinary hygienic procedures, we are told concerning special treatment that the temperature rarely needs the attention required by some other infectious diseases, and when it does require such attention the

cold sheet or Leiter's tubes may be used. The author, who is Dr. Pye-Smith, does not consider digitalis by any means as valuable in pneumonia as it is in the treatment of cardiac failure due to valvular disease. Bleeding is not to be neglected, nor is it to be overdone, and it is particularly indicated in those cases where there is distention of the right side of the heart and cervical veins. To our surprise we do not find any recommendation of the use of strychnine or atropine in the meeting of severe symptoms of circulatory or respiratory failure in this disease. Indeed, we think that beyond the points named the treatment outlined is distinctly unsatisfactory. In the article on hay-fever, a disease with which Englishmen are perhaps not so well acquainted as American practitioners, we are surprised to find that in the opinion of Dr. Goodhard a hypodermic injection of morphine stands first for the purpose of diminishing the violence of the dyspnea, and that pilocarpin is also a valuable drug where asthmatic attacks complicate the affection. He suggests the use during the attack of the inhalation of fumes from blotting-paper soaked in nitrate of potassium; in other words, he treats this condition much as he would an ordinary case of asthma. After reading the article on treatment of this disease we confess that we do not feel that we have gained much knowledge. These are, however, individual criticisms which in no way militate against the value of this volume. It is a System of which the Anglo-Saxon in America can be as proud as the Anglo-Saxon in Great Britain, and will prove of great use as a work of reference to medical teachers and practitioners on both sides of the Atlantic. We would not be without it.

HAY-FEVER AND ITS SUCCESSFUL TREATMENT. By W. C. Hollopeter, A.M., M.D.  
Philadelphia: P. Blakiston, Son & Co., 1898.

This little brochure of a little over one hundred pages of text represents to a large extent personal studies made by Dr. Hollopeter concerning this disease. He evidently writes almost entirely from the clinical aspect of personal experience, although at the close of the book there is a copious bibliography extending from 1565 to 1898.

After discussing the etiology and pathology of the affection he tells us, in the chapter devoted to treatment, that the daily sterilization of the nares and post-nasal spaces is a point of primary importance in hay-fever sufferers. The second point is to remove any abnormal

condition which renders the mucous surfaces hypersensitive. The local treatment consists in the use of the ordinary Dobell's solution sprayed thoroughly into each nostril, after which the mucous membrane is, to use Dr. Hollopeter's term, "scrubbed" by means of a piece of cotton on a cotton carrier, after which the mucous membrane is dried and a mild solution of menthol and albolene is sprayed in and the nostril is plugged for a moment in order to keep the oily application in contact with the mucous membrane. There is no doubt whatever that the antiseptic recommendations of Dr. Hollopeter are worthy of being universally followed.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS. A Practical Treatise on the Diseases of Women and their Treatment by Electricity. Third Edition, Revised, Rewritten, and Greatly Enlarged. By G. Betton Massey, M.D. Illustrated. Philadelphia: The F. A. Davis Co., Publishers, 1898.

Although this volume professes to be a third edition of Dr. Massey's book upon Electricity and Diseases of Women it is in reality a new work, as the original volume has been so rewritten and increased in size that the two when put side by side do not show any relationship to one another save in the fact that both of them strongly urge the use of electricity in the treatment of a good many disorders which other gynecologists believe can only be remedied by distinct operative procedures. The book is divided into two parts, the first dealing with the modes of examining patients, studies concerning electricity, and the methods of its application to the diseases of the genito-urinary tract in the female in which electro-therapeutics are believed to be of value. The second part deals with the rudiments of medical electricity, and is devoted to an explanation of the physics of the subject and to distinct directions as to the apparatus to be employed. A noteworthy characteristic of the volume is the full-page illustrations which are to be found through it. A large number of these are from life and many of them are lithographs taken from paintings of living patients. In other instances they are actual photographs, in which can be recognized the author, one of his trained nurses, and the patient.

It is customary in most books of this character where an actual patient is photographed to so destroy the likeness as to make identification impossible, but a disregard for this custom which would do credit to a French novel is characteristic of some of these pic-

tures, as for example in Plate VIII or IX. However, *honi soit qui mal y pense*. It can be said on the other hand that these illustrations are unusually good, that they illustrate far better than many diagrams with which we are familiar the points to which electricity is to be applied for therapeutic purposes, and Dr. Massey deserves credit for the infinite pains which he has apparently taken to illustrate his subject. The question as to the usefulness of electricity in the genito-urinary affections of females we have no space to deal with. Dr. Massey is one of those who "out-Herods Herod," so to speak, in his confidence in these measures. There is no doubt at all that in a certain number of cases electro-therapeutics are exceedingly valuable in this class of patients. That fibroids and other large tumors can be removed by the use of electricity is, however, beyond our belief. The present volume nevertheless is so far as we know the best exposition of the subject in the English language. The early and comparatively imperfect editions which have preceded it have been unusually successful, and for these reasons the present volume cannot fail to prove popular.

A MANUAL OF OBSTETRICS. By A. F. A. King, M.D. Philadelphia and New York: Lea Brothers & Co., 1898.

This, the seventh, edition of Dr. King's small but very useful manual of obstetrics not only contains all that was good in the previous editions, but those facts which have been accumulated by the author in personal experience and from current medical literature since the last edition appeared. The success of this book has depended upon the fact, first, that it represented the teachings of a recognized authority; second, that the student and practitioner find the information that they desire in a concise and applicable form; and third, the size and price of the volume is such that it is within the reach of every one. The present edition will serve to still further increase the popularity of the work.

THE INTERNATIONAL MEDICAL ANNUAL FOR 1898. New York: E. B. Treat & Co. Bristol, England: Wright & Co.

This annual publication is now familiar to most practitioners in this country and abroad. The editor has called to his aid a number of men who are well known writers in the various branches of medicine, and they have abstracted from current medical literature most of the material which they consider

valuable. The present volume is equal to its predecessors in value. Like them it is copiously illustrated in black and white, and is also beautified by colored lithographs. The work deserves the success which has already been accorded to it.

## Correspondence.

### LONDON LETTER.

By RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.  
LOND.

We have recently regaled you with details of the treatment of phthisis by large doses respectively of creosote and guaiacol, and now we would call your attention to the paper read by Dr. Russell, of Birmingham, at the meeting of the Midland Medical Society, on "Iodoform in the Treatment of Phthisis." Iodoform has recently in this country passed into complete disrepute as of any substantial value in the treatment of pulmonary tuberculosis, so that it is interesting to find some one who has a good word to say for it. After subtracting all cases in which the period of attendance was too brief, or other conditions too uncertain to build an argument upon, Dr. Russell minutely analyzes 123 cases. Most of the cases were treated with rapidly increasing doses of iodoform. The initial dose was usually two or three grains three times daily, and to this two grains were added weekly to each dose until a maximum dose of ten grains thrice daily was reached. In these cases the iodoform was habitually given along with cod-liver oil, but any fallacy arising from this cause has been eliminated by comparison with a group of cases treated with cod-liver oil, but without iodoform. The criteria of improvement that have been selected are alteration in physical signs, occurrence of hemoptysis, alteration in cough and night sweats, change in weight, and the subjective sensations of the patients themselves. Out of fifty-one cases available for investigation, as many as fifteen showed some improvement in the physical signs, and in five of these the improvement was marked—a very much larger proportion than in the cases treated without iodoform. The stage of disease in each series may be taken to all intents and purposes as the same. In fact, looked at from this point of view the iodoform treatment can hardly be said to have had a fair chance, as in out-patient practise the early and tractable cases tend

to discard treatment as soon as any improvement is felt, while only the advanced and hopeless cases persist to the bitter end. The statistics of hemoptysis under the treatment are quite valueless, as the series of contrast cases differ widely in the duration of the attendance, and *ceteris paribus* the longer the attendance the greater the likelihood of hemoptysis. Dr. Russell failed to find the same benefit for the night sweating that other observers have recorded from iodoform, and only a very slight influence on the severity of the cough. Every one will agree with Dr. Russell that there is no better index of improvement than gain of weight in phthisis, and in this particular the cases treated with iodoform show a marked advantage over the contrast series. We append the two tables for comparison:

#### IODOFORM CASES.

|                              |    |
|------------------------------|----|
| Attended 6 to 12 weeks.....  | 45 |
| Gained, 19 { 1 to 5 lbs..... | 15 |
| { 8 to 9 lbs.....            | 4  |
| Lost, 19 { 1 to 5 lbs.....   | 12 |
| { 6 to 13 lbs.....           | 7  |
| Stationary.....              | 7  |

#### CASES NOT TREATED WITH IODOFORM.

|                             |    |
|-----------------------------|----|
| Attended 6 to 12 weeks..... | 15 |
| Gained, 5 { 1 to 5 lbs..... | 4  |
| { 6 lbs.....                | 1  |
| Lost, 8 { 1 to 5 lbs.....   | 6  |
| { 6 to 8 lbs.....           | 2  |
| Stationary.....             | 2  |

A very large number of the patients expressed themselves as feeling decidedly better under the iodoform treatment. This cannot be attributed to the traditional optimism of phthisical patients, because, as Dr. Russell points out (and we have always maintained the same) the characteristic of phthisical out-patients at a hospital in a large town is profound and ineffaceable depression. From what we have said it will be seen that no great power for good is claimed for iodoform, but rather that it compares favorably with other drugs. In spite of the large doses employed in these cases, only two instances of toxic symptoms were noted, namely, two cases of temporary amblyopia.

The committee appointed by the Clinical Society of London at the commencement of the year 1895 to investigate the clinical value of the antitoxin of diphtheria have just issued their report. Their findings merely confirm the generally accepted belief in its efficacy not only to lessen mortality, but also to prolong the duration of life in fatal cases. Looking at the statistics of the cases of more or less marked laryngeal affection, the committee express themselves as very confident of the usefulness of antitoxin. In the first place,

nearly one-half of the cases of laryngeal affection escaped tracheotomy, while the mortality after tracheotomy was only 36 per cent. as against 71.6 in the series compiled from the statistics of general hospitals prior to the introduction of antitoxin. Translated into other terms, this represents a lessened tendency of the membrane to spread to the larynx and trachea, and a lessened danger in the cases in which such extension has occurred. The investigations also confirm the absence of any connection between the occurrence of paralysis and the amount of antitoxin injected. This is the more remarkable, as with a lessened mortality from the initial disease one would have expected an increase of the paralytic sequelæ. Joint pains beyond a doubt must be set down as one of the ill effects of the antitoxin, as they do not occur in the series not treated by antitoxin; and in nearly all the cases in which joint pains occurred there was also a rash and some rise of temperature. A rash occurred in nearly one-third of the 633 cases treated by antitoxin; the rashes were either erythematous or urticarial, but the former were much the more frequent. The date of eruption from the time of the first injection varied considerably, but in two-thirds of the cases it appeared between the sixth and the twelfth day, and the eighth day seemed to be the most favored day. In more than half the cases the temperature rose with the appearance of the rash, the duration of which was very variable. It will be seen that the report contributes little fresh material to existing knowledge, but it is of great value as the careful conclusion of a committee of conscientious clinical observers.

The special "Tuberculosis" number of the *Practitioner*, to which we called attention in our last letter, seems likely to bring about some practical assistance to the preventive treatment of tuberculosis in this country. Recently a meeting of many leading medical men was held at Sir William Broadbent's house to discuss measures for awakening the interest of the public. The first step has been taken in the formation of a society to disseminate knowledge as to the channels and modes by which tuberculosis is acquired, and should this preliminary effort meet with any adequate public response, it is proposed to establish sanatoria that shall be peculiarly within the reach of all classes of the community. Dr. Burton Fanning has shown that the open-air treatment of phthisis can be

and inclement conditions of climate that have fallen upon us in these latter days. He has tried it for a period of three years in a convalescent home at Cromer, details of which were published in *The Lancet* of last March. The whole of the twenty-two patients subjected to the régime benefited in some degree, and some to a remarkable degree. By means of shelters so constructed as to protect from rain, wind, and the glare of the sun, patients were able to spend as much as six and a half hours a day on an average in the open air; and it is probable that in an institution with a resident medical officer always at hand, even longer hours might have been allowed without risk.

Dr. Dreschfeld's paper to the Manchester Therapeutical Society on the therapeutics of diuretin is valuable. He had used it in acute Bright's disease, where the urine was scanty, and had found it increase the output of urine from 15 ounces to as much as 100 ounces in the twenty-four hours. The same good results were not obtained in post-scarlatinal nephritis. In chronic tubal nephritis he had sometimes found diuretin act when digitalis had failed, but the effects were as a rule transitory; while in interstitial nephritis he had found no benefit, and on the other hand a liability to excite toxic symptoms. Dr. Dreschfeld considers diuretin to be a powerful diuretic by virtue of its action on the epithelium of the convoluted tubules. He apparently does not believe in any primary action of the drug on the heart, but considers the relief to the heart secondary to the diuresis. This latter view we fancy is generally held, and has been confirmed by the experiments of Cohnstein on animals. In heart disease Dreschfeld found diuretin valuable in the treatment of mitral disease, especially when the symptoms had come on suddenly. In aortic disease—in which we have sometimes found it tolerated when digitalis was not—Dreschfeld found it of little use, and sometimes actually harmful; while in simple failure of the heart muscle without valvular lesion diuretin had sometimes done what digitalis had failed to do. In our own experience diuretin has always seemed a most capricious drug in the treatment of cardiac dropsy, sometimes acting like magic, at another time and in apparently identical conditions failing completely. It seems almost as though reaction to the drug were to some extent an idiosyncrasy. In cirrhosis of the liver Dreschfeld has got startling results from diuretin; he had seen as much as four or five



quarts of urine passed in the twenty-four hours. As with cardiac disease, the cirrhotic patients in whom the symptoms had come on suddenly were more amenable than the older patients in whom the onset was insidious. Foster, of New York, has stated definitely that it is useless for diminishing ascites in hepatic cirrhosis, but possibly all the cases in which he tried it may have belonged to the latter category. Dreschfeld found no benefit either in the dropsy of pericarditis or of peritonitis, but had employed it successfully in one or two cases of pleural effusion. The ill effects of diuretin, as with digitalis, seem to fall mainly on the digestive system and are evidenced in nausea and vomiting. Dreschfeld occasionally noted signs of collapse, a symptom quite in accordance with Cohnstein's experiments on animals. Dr. Dixon Mann suggests that some of the depressing effects of diuretin may be due to the salicylate of sodium it contains, and thinks that some soluble form of theobromine may be found more advantageous than diuretin. We should fancy that omission of the salicylate on the other hand would rob diuretin of one peculiar advantage it possesses in its marked action on the liver in addition to the other organs it affects.

Now and again we are confronted with alarming symptoms from an overdose of that very useful drug, exalgine. Such a case is reported in the *British Medical Journal* of June 11. In this instance the patient had taken an eight-grain dose. The account of the patient's sensations as given by herself and the very rapid recovery certainly suggest that hysteria lurked rather prominently in the background. We have ourselves repeatedly used four-grain doses two and three times a day and have never yet encountered any of the untoward symptoms for which we have always been on the watch. We do not, however, consider it a drug that can be satisfactorily given over a period of time, as its effects are transitory and usually very quickly induced; it will often cut short an attack of pain, and is thus a valuable ally to other analgesics of a slower and more persistent activity.

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#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

In one of this year's numbers of the *Semaine Médicale* Dr. Maurice de Langenhagen, of Cannes and Plombières, published an article

on the affection known as muco-membranous enteritis. Dr. de Langenhagen's personal experience in treating this disease at Plombières, and the care he has taken to set out at length the treatment, make the article an interesting one.

The etiology and pathology were first considered. Regarding the former Dr. de Langenhagen is to be classed among those who think that the cause must be sought in an irritation of the cecum and colon, and perhaps of a portion of the small intestine, due to stagnation of the feces in the intestinal canal. This stagnation gives rise to an irritation of the mucous surface, affecting chiefly the glandular system, and consequently superficial only.

In almost every case the affection itself has been preceded by a period during which no other symptoms than obstinate constipation and at times the passage of membranes were to be noted. The constipation may date far back, to childhood even.

It is unfortunate that at this stage the patient too rarely calls the attention of the physician to his condition, and it may likewise be feared that in many cases the latter would not understand the importance of preventing the onset of an affection which is so painful both physically and mentally.

In one or two cases Dr. de Langenhagen has observed the seeming occurrence of the affection after an acute enteritis, and without a previous stage of long-continued constipation.

In treating muco-membranous enteritis three points should be considered, namely, the diet, the state of constipation, and the pain and discomfort suffered by the patient. However much it would seem rational to give a diet in which an abundance of cellulose and, generally speaking, coarse food would tend to prevent constipation, which is one of the chief symptoms, the very opposite is to be followed. The diet should in fact be as mild and concentrated as possible, and any additional constipation so produced must be met by the means spoken of later on.

Dr. de Langenhagen recommends in severe cases an exclusive diet of a mixture of eggs and powdered meat, until the improvement be such that a less restricted diet may be taken.

In acute attacks with dysenteriform symptoms milk may be used exclusively, but only for a short time, as it tends to increase the constipation.

I may say here that milk is disapproved of

by others who have had great experience in this affection, notably by Professor Potain of Paris, and by Dr. Baraduc of Châtelguyon, one of the two springs in France where most cases resort for treatment.

When the patient has recovered sufficiently to take a more generous and above all a more agreeable diet than eggs and powdered or raw meat, he may be given the following:

Thick soups made with arrowroot, rice-flour, barley-flour, oat-flour, or lactated food; eggs prepared in various ways; roasted or broiled meats, both dark and white, chopped up or cut into small pieces, and with the fat and gristle carefully removed; brains; sweet-breads; fish, such as sole or pike, but not oily fish, like salmon or mackerel. These fish may be boiled or fried in batter, but when eaten, the latter and the skin should not be taken. Lean ham not too salted is good.

Vegetables should be taken in small quantities only, and should be mashed; thus mashed potatoes or peas or lentils are good, but salads, string-beans, and I may add for the United States, green corn, are to be avoided.

It is undoubtedly better that such dishes should be prepared with as little butter as possible.

Fruit necessarily falls under the same interdiction as salads, especially when uncooked. A little cooked fruit, mashed and passed through a sieve, may be taken. No preserves are allowed.

Bread may be taken in small quantities only, and then stale, and it is better to replace it by some form of biscuit made expressly for dyspeptic patients. In some cases it is exceedingly difficult to induce the patient to give up bread, but its liability to ferment and its irritating action upon the intestine may render such action necessary.

For sweets, light dry cakes or custards or blanc mange are good. Pastry is to be avoided.

The patient should drink but little. Water is the best drink, though in some cases a mild beer mixed with water has been better supported. Weak hot tea taken at the end of the meal seems to have good effects in some cases. Wines and liquids containing alcohol should be most carefully avoided. Sauces, spices, game and fats may not be taken.

Even when recovery has taken place two articles of food must be forever laid aside, fat and alcohol. The latter seems to burn

the intestine of patients liable to mucous-membranous enteritis. So much for the diet.

The constipation should be treated as follows: A good stool should be obtained daily. Castor oil is a favorite with many for this purpose. A teaspoonful in the morning is usually sufficient. It may be given in black coffee or mixed with some substance which will enable it to be taken with less trouble. In some cases, however, it seems to encounter a special abnormal susceptibility in the patients, who even after so small a dose as the above are really prostrated from the violent effect produced, and in whom the intestine remains for some days in a state of great irritation. In such cases small doses of olive oil, containing a few drops of castor oil, have been recommended by Dr. Malibran, of Mentone, who has practised at Plombières until recently.

Instead of the oily purgatives some physicians prefer small doses of sodium or magnesium sulphate, say from four to eight grammes every morning. Glénard of Lyons and Vichy recommends this treatment.

Podophyllin and belladonna, or cascara sagrada, with or without rhubarb and magnesia, may be given.

Dr. de Langenhagen does not look with favor on enemata used for the purpose of causing a movement of the bowels; he thinks that they soon dull the sensitiveness of the rectum.

Respecting local applications to the intestine, large enemata of hot water are useful, but should not be given too frequently. Borax (two grammes to the liter), sodium bicarbonate, or ichthyol (one to two tablespoonfuls to the litre) may be used. It is advisable to give these enemata by means of a reservoir raised from thirty to forty centimeters above the patient. The water should be boiled and allowed to cool to from 45° to 48° C. (113° to 118° F.). One liter may be introduced but not retained; following which from one-half to three-quarters of a liter should be injected and retained some minutes, during which the patient may be turned first on his left side, then on his back, and finally on his right side, in order to enable the liquid to penetrate as far as the cecum.

Pain and discomfort may be treated by the internal administration of tincture of cannabis indica or of belladonna. An excellent method is to cover the abdomen at night on going to bed with a compress wrung out of cold water, and covered over with flannel and oiled silk.

Local spasm of any particular part of the colon may be removed in a few minutes by means of massage executed with great gentleness over the region affected.

In France two mineral springs are recommended against muco-membranous enteritis. Plombières is considered by Dr. de Langenhagen to be more efficacious in acute spasmodic varieties of the affection. It is a pretty little village, situated in a deep and narrow valley of the Vosges Mountains near the German frontier. The valley is so narrow in one place that at its bottom there is room for but one street, in which when a carriage passes the passers-by are obliged to step into the door-ways and shops. Plombières was a favorite resort of the late Emperor Napoleon III. The spring is used chiefly in baths.

The second mineral spring, Châtelguyon, is in the center of France, and is considered by Dr. de Langenhagen as more especially suitable to torpid chronic forms of muco-membranous enteritis.

As I have just returned from a visit to Châtelguyon I will say a few words about the place itself.

In the very center of France, where lies Clermont-Ferrand, the capital of the department of the Puy-de-Dôme, is to be found a volcanic mountainous region. Here are situated several of the best known springs of France: Royat, at half an hour's walk to the west of Clermont-Ferrand; La Bourboule and the Mont-Dore, a few miles to the southwest; Vichy, to the northeast, on the other side of the fertile plain of the Limagne, which borders the River Allier, running north and south; and finally Châtelguyon, about fifteen miles north of Clermont-Ferrand. It is reached by a three-quarters-of-an-hour drive from Riom, a curious little town of about ten thousand inhabitants, one of the stations on the railway from Clermont-Ferrand to Paris.

Châtelguyon, though so near to Clermont-Ferrand, is not situated in the really mountainous region, but just on the edge of the latter. The village is built at the bottom and on the sides of a small round hill, once topped by a castle, and on which a Calvary has been erected. It is situated at a height of 360 meters above the sea. Its waters, which are given by between twenty and thirty springs, contain as their principal salts magnesium chloride and iron carbonate. Their temperature varies from 27° to 35° C. (81° to 95° F.), and they are charged with carbonic acid gas. Treatment is given by means

of baths and by the internal administration of the water. The springs give two million liters in twenty-four hours, and such is the quantity of water available that the baths may be taken, if desired, in the water running directly from the spring and escaping at once from the bath-tub. After a minute or two in the water the action of the carbonic acid gas upon the skin causes the latter to redden, while a slight burning sensation is felt.

Châtelguyon is recommended in muco-membranous enteritis, in all forms of constipation, in chronic appendicitis, and in dilatation of the stomach. Anemia complicated by constipation in young girls is treated with success. It has been found useful in enteritis and diarrhea due to the tropics. In brief, *atony of the digestive organs* is its chief indication.

The country to the back or west of Châtelguyon is wild and curious. The old Auvergne villages are picturesquely dirty, and the huddling together of the stone houses, cattle and men together in the same building, with narrow streets, is worth examining, and forms a striking contrast to the hôtel quarter of Châtelguyon.

In a walk I came across a man lightly ploughing with a wooden plough, tipped only with iron, and with but one long handle. Though not very old he told us that he could remember when it was the only variety of plough used in the country. Now it was used only to turn over ground already ploughed. Nothing is more common than to meet some old peasant woman watching a cow feed by the roadside, while under one arm she carries a staff around which hemp is bound, and with the hand of the other arm she twirls the spindle, spinning thread which some local hand-loom weaver will make into coarse hempen cloth for household use. In another part of Auvergne, or rather in what is called the Haut-Limousin, I have seen the women so spinning, but carrying the hemp on the broad brim of their head-dress, as they walked along, herding a cow or a pig or two or some geese.

This Haut-Limousin, which I visited some years ago, is not known to the tourist. It is a land of brooks and high mountains covered with gorse, where at the inn one may be served, as I once was, from a pear-tart measuring half a meter in diameter.

Dr. Schreiber, assistant at the Clinic of Internal Medicine at the University of Göttingen, has recently proposed the substitution

of sodium permanganate for potassium permanganate in cases of poisoning due to morphine or phosphorus. This he was led to do on account of the lesser toxicity of sodium permanganate.

A series of experiments on dogs convinced him that the effect of sodium permanganate was as efficacious as that of the potassium salt.

The following method of treatment is recommended by Dr. Schreiber: The stomach should be first washed out with 2:1000 solution of sodium permanganate, after which one-half liter of the solution should be swallowed or introduced by means of the tube, and retained.

When it is not possible to procure an apparatus for washing out the stomach, vomiting may be induced by a subcutaneous injection of apomorphine. This latter should, if possible, not be given by the mouth, in order to avoid counteracting the action of the sodium permanganate; in cases where the drug must thus be given, however, one-half liter of the sodium permanganate solution should be first administered, followed by a second half liter, when the vomiting has ceased.

Recent visitors to Paris must have noticed that the atmosphere, which used to be so clear, has become more and more smoky, owing to the increase in the number of factories and in some quarters to the smoke given off from the electric light works. It has accordingly been decided that all persons causing thick or prolonged smoke in Paris must within six months take means to do away with its production, under penalty of being dealt with as a public nuisance.

Dr. Deléarde, assistant professor at the Faculty of Medicine of Lille, has successfully treated five cases of painter's colic by means of subcutaneous injection of normal saline solution. The solution used was that recommended by Professor Hayem, of Paris; namely, sodium chloride 5 grammes, sodium sulphate 10 grammes, distilled and sterilized water one liter. In every case 500 cubic centimeters was injected, and in from 12 to 48 hours diarrhea lasting from two to three days appeared. The pains ceased after the injection and previous to the appearance of the diarrhea.

In all the cases treated in this way the subcutaneous injection of the solution seemed not to cause, as usual, a more abundant flow of urine, but to spend all its action upon the intestinal canal. The diarrhea due to the

treatment ceases in from two to three days without treatment. In every case the appetite was at once much improved.

#### BERLIN LETTER.

BY JAMES J. WALSH, M.D., PH.D.

The most interesting thing in therapeutics in Berlin during this past month was Koch's talk before the German Colonial Society on tropical malaria. In his experience of nearly two years in German East Africa, where malaria is very common, he found quinine an unfailing remedy for the disease; while a gramme (15½ grains) a day was enough to completely protect the unacclimated against infection. He insisted that entirely too much quinine is administered in malarial regions and thinks that the dreaded "*schwarz wasser fieber*," malarial hematuria, is always, not a symptom of a pernicious form of malaria, but of quinine intoxication. He never saw it in a case where he could absolutely exclude the possibility of its being due to quinine, that is, never saw it in a patient who had not taken the drug; and as the idiosyncrasies for quinine are by no means rare, and when they exist often render the patient extremely susceptible, he has become thoroughly persuaded of the quinine origin of the hematuria.

Quite as surprising as this was his discussion of the possibility of the production of a serum immunity to the disease. There is here a question of an entirely different microbe to those that cause diphtheria or tetanus, an animal, not a vegetable, parasite, so that the master's declaration that the same laws as to the production of immunization probably apply here, as to the diseases caused by bacteria, is at least interesting. Koch has noted in the tropics that malaria in normally healthy individuals, even when entirely untreated, has a distinct tendency to be self-limited. The paroxysms of an attack become successively milder, and succeeding attacks have fewer paroxysms, and these are not so severe, until finally the individual acquires practical immunity, suffering but very slightly from malaria. Naturally, no one but those who have either had the disease themselves, or are protected by heredity, escape the disease. The inhabitants of portions of the tropics where the disease does not exist—and there are some such places in German East Africa—suffer as severely from the disease when exposed to it as Europeans,

though Koch has noted, and it is a tradition among the natives themselves, that after living in a malarial region for a while they do not suffer from the disease as before.

Koch looks forward then to the probability of artificial immunity protecting against the disease and so making possible the colonization of the rich tropical regions now forbidden to Europeans because of the disease. He considers the possibility of such immunity feasible even though we should know no more of the life history of the malarial parasite than we do at present, though he considers, too, that the theory of the mosquito being the intermediate host of the hematoozon of Laveran is a very probable one and that further research along this line will give us the life history of the parasite.

The treatment of other diseases where the microbic cause was unknown has become possible. The cattle plague for instance, to which Koch has devoted so much time during the last two years in South Africa without finding a definite bacteriological cause for it; whose microbium *causas* is possibly so small that his assistant, Dr. Kolbe, has just announced that it is probably beyond the power of the microscope as at present constructed to bring it into view, is no longer the dread destroyer that it was, since a protective serum has been found for it. The cause of hydrophobia has always remained a mystery, but the treatment for it and that too by biological means has been found. This is, I believe, Professor Koch's first public acknowledgement of the efficacy of the Pasteur treatment for hydrophobia.

The finding of an immunizing serum for malaria, even with our present defective knowledge of its cause, Koch does not consider impossible. The object is one eminently worthy of a patient investigator's time and labor, for it would confer untold benefit on mankind and open up rich but at present practically uninhabitable regions to colonization and civilization. The end to be attained he considers a much more important one than polar exploration, to which so much time is devoted by enthusiastic discoverers and so much money by governments.

At a recent meeting of the Berlin Medical Society Professor Silex, the ophthalmologist, treated the subject of atrophy of the optic nerve in tabes. In true tabetic atrophy he has never seen specific antisyphilitic treatment do good and he is sure that he has seen it do harm—that is, hasten the course of the disease when persisted in. A careful study of

some sixty cases has shown him that tabetic optic nerve atrophy is almost without exception post-syphilitic, and he agrees with Erbas to the etiological connection at least indirectly of syphilis with the disease, but must say a word of warning as to syphilitic remedies; especially is the *schmier kur* (the rubbing in of mercury into the skin—the usual specific treatment in Europe) liable to lead to rapid and complete loss of sight.

Professor Silex thinks that he has found that a mild continuous electric current applied to the temples produces good results. The progress of the disease is rendered slower, remissions occur oftener, and during the remissions distinct improvement of vision may be noted, as if the gentle electrical excitation of the unatrophied optic fibers led to a better fulfilment of their function and so sight was improved. Professors Oppenheim and Bernhardt agreed with him that the most satisfactory treatment was with the continuous current, and also as to the bad effects of mercurial treatment in these cases. Professor Oppenheim further dwelt on the symptomatic tabes which sometimes develops directly from syphilis and which is often so hard to differentiate. At times only the therapeutic test of the favorable reaction to antisyphilitic treatment absolutely assures the diagnosis. Yet the administration of specific remedies must not be begun unless there is something suspiciously atypical in the symptoms of a supposed tabes or in the course of the affection, and must not be continued longer than a couple of weeks, or irreparable injury will be done.

Professor Eulenberg discussed the treatment of neuralgia at a recent meeting of the Hufeland Medical Society, and there seems to be two things that the more exact diagnosis and observant therapeutics of the last few years have brought into prominence in the handling of this often so obstinate affection. First, so-called neuralgia is in a great many cases really not a local peripheral nerve affection, but a central affection, not a neuralgia, but a *psychalgia*, for which the only hope of treatment lies in the betterment of the general condition of the patient, with the expectation that the functional psychical trouble will grow correspondingly less. Hence the frequent benefit obtained from suggestive influences; against the abuse of which, however, Professor Eulenberg expressly warns and gives the striking example of a physician who, to relieve a constant neuralgic pain in

the neck, inserted an electrode into the esophagus and allowed several shocks to be given, with the deliberate purpose, so he told the patient, of killing the nerves that were giving the pain. He did stop the pain, but the patient now insisted that he was unable to swallow, the nerves of his esophagus having been killed; and the last condition was worse than the first.

The other resource in many cases of neuralgia that obstinately resist treatment is a long course of massage. The properly directed excitation of peripheral nerves when not carried to the extent of fatigue seems to exert a tonic influence upon the whole neuron or set of neurons affected.

A very interesting application of this principle of the tonic influence of peripheral nerve irritation is discussed by Dr. Lots in an article in the last number of Professor Leyden's *Zeitschrift für Klinische Medizin*. He uses especially two forms of mechanical cutaneous irritation. A rough sponge, or the spongy vegetable material known as Loofah, is used to produce, by gentle friction at first and then as the patient grows used to it by harder rubbing, for ten to twenty minutes at a time, a state of cutaneous hyperemia. Only a part of the body is uncovered and subjected to the process for the time being, so as to avoid chilling. His second method is walking barefooted over pebbles, *i.e.*, little rounded stones about one centimeter ( $\frac{1}{16}$  inch) in diameter. This last is an excellent local remedy for cold feet and consequent sleeplessness, and is said to be rather pleasant than otherwise for the patients. These two sets of cutaneous irritation are claimed to give excellent results in habitual headache, and in the relief of that tired feeling and other general symptoms that accompany neurasthenic conditions.

In its inventor's hands the method has also been successful in the treatment of that depressing condition for the physician, the ailing state that so often develops in precocious children, who have been allowed and encouraged to do serious mental work when too young, and in whom there is seen want of appetite, restless sleep, vivid dreams, talking in their sleep, and night terrors. Cutaneous irritation has also proven of service in palpitation of the heart where it was evidently of nervous origin. Doubtless the effect of the method is mainly its suggestive influence, but anything that will do good in these unsatisfactory conditions cannot but be welcome to the practitioner.

#### REPORT OF AN ANOMALOUS CASE OF MORPHINE POISONING.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: A. C. L., aged forty, had been suffering from a lacerated wound of foot for two weeks. The wound at this time was in good condition, but somewhat painful. He was called for breakfast on the morning of June 12 and appeared well, but declined to eat anything. About 8.30 A.M. he was heard, by some one in the next room, breathing heavily, and at 9.30 he was found apparently dying, and we were summoned. Dr. E. E. Horn, of this place, was also called. On arriving at 10 A.M. we found him lying on his back, mouth wide open, absolutely comatose. Pulse 70, full and regular. Respiration typically Cheyne-Stokes, and stertorous, about 15 per minute. The skin was cool and moist, cyanosed and mottled over chest and abdomen. The hands, feet and legs were cold. The throat, trachea and larger bronchi were filled with mucus, producing coarse, bubbling râles. The pupils were pin-point in character, equally contracted. No paralysis of any part of body was found; the muscles were completely relaxed. About one pint of urine was drawn, which was a little darker than normal in color.

A diagnosis of opium poisoning was at once made, and partly confirmed by finding about eighty grains of morphine in his pocket. One-fiftieth grain of atropine,  $\frac{1}{16}$  grain strychnine nitrate, and  $\frac{1}{16}$  grain nitroglycerin were given hypodermically, and hot bottles placed about patient. Very little change was noticed after this.

At 10.30 A.M.,  $\frac{1}{16}$  grain atropine and  $\frac{1}{16}$  grain strychnine was administered. The pupils dilated to 3 m.m.; the respirations became more regular with less stertor, and less mucus was present in throat. The pulse was 90; the feet and hands warm, and cyanosis less marked. At noon five grains of potassium permanganate and one ounce of whiskey were given, but no change occurred. At 2 P.M. the pulse was 110 and somewhat irregular; after one-tenth grain strychnine nitrate was given it again became regular. At 4 P.M. we gave  $\frac{1}{16}$  grain strychnine and  $\frac{1}{16}$  grain atropine. The pulse was now 130, the respirations 30. At 5 P.M. the pulse was 150, weak and irregular. His breathing was becoming more shallow, and the mucus was increasing in throat. The skin was more cyanosed. We gave tincture of digitalis, 22 minims. At 5.45 P.M. death occurred with a single spasm of flexors of arm.

The heart beat one minute after respiration ceased. Artificial respiration was kept up thirty minutes after this with no signs of returning life. After the extremities became warm they remained so till some hours after death. Thirty-six hours after death the whole of right side and the external genitals became enormously distended with gas and much discolored. As all injections were made into the right side, and especially into the gluteal region, the question arises whether this had anything to do with the production of the gas.

No attempt was made to evacuate the stomach either by the use of emetics or the stomach tube, firstly, because the morphine had been taken on an empty stomach and was probably all absorbed by this time; secondly, because of the deep coma, the spasmodic character of the breathing, and the large amount of mucus in the throat, in our opinion the use of either would have been attended with great danger of sudden death from asphyxia.

At no time could the patient swallow; hence no antidotes could be used except those which could be administered hypodermically.

Our diagnosis was based on:

1. The bilateral equal contraction of the pupils.
2. The deep coma and clammy skin with cold extremities.
3. The fact that a large quantity of morphine (two drachms) had been purchased three days before by the patient, who was not addicted to the morphine habit, and a diminished quantity (80 grains) was found upon his person when seen by us.
4. The fact that large doses of atropine failed to produce any marked mydriasis.
5. The absence of any paralysis which with the equally contracted pupils would exclude cerebral hemorrhage or embolism.
6. The negative condition of urine with history of patient, which obviates the possibility of its having been uremic coma.

Some of the remarkable features of this case are:

1. The peculiar character of the breathing, at no time less than 15 per minute, increasing to 30 half an hour before death, and at first typically Cheyne-Stokes. From the literature now accessible we are unable to find any instance of Cheyne-Stokes breathing in opium poisoning.
2. The temporary dilatation of pupils after the administration of atropine, followed by

their contraction, although the use of atropine was continued.

3. The great heat at surface of body continuing till long after death. (We regret not having taken the temperature.)

4. The early appearance of coma so profound that patient could not be aroused by any means.

5. The distention of right side only, after death. Injury of foot was on left side.

Our time was occupied so completely by our practise that we did not do a post-mortem, and as the coroner did not consider it necessary under the circumstances, none was done.

Yours truly,

DRS. BRADFORD & COLCORD.

AUSTIN, PA.

#### *CASES OF INTUSSUSCEPTION.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I read with considerable interest your article on intussusception in the June number of the THERAPEUTIC GAZETTE, and regret that I did not know of your interest in this subject, as I could have added two very interesting cases to your table of this extremely rare affection. My first case occurred in 1888, and as I was then a young practitioner, having graduated from the University of Pennsylvania in 1885, and realizing the gravity of the affection, I did not assume to manage the case without assistance and therefore called in consultation one of Trenton's most prominent physicians, Dr. Joseph Bodine, now deceased, who verified my diagnosis of intestinal intussusception.

The patient was a girl aged seven years, with a history of obstinate constipation. The symptoms were typical—sudden onset of pain, constipation, tumor in left iliac region, muco-sanguineous stools, vomiting, and subsequently great abdominal distention. The treatment was medical; no effort was made to replace the bowel. In about eight days after the onset of the trouble the child was seized with most intense abdominal pain, followed in about a half hour by a free evacuation of the bowels. The stool contained a mass of sloughing intestine about three inches in length. The convalescence was protracted. There was for some time pain and tenderness on pressure over the abdomen, with alternating constipation and diarrhea, the stools containing a considerable quantity of mucus tinged with blood. Eventually, however, she entirely recovered, apparently without

stricture of the intestine. She is now a strong and vigorous girl, and singular as it may appear, since the attack the bowels have been regular.

My second case I had quite recently. On May 5, 1898, I was requested by Dr. James Cooper, of Trenton, to see with him a case of intestinal obstruction in a boy aged five years, with history of obstinate constipation since birth. On April 30, while playing on the floor, he suddenly complained of severe pain in his abdomen; during the night he had a small fecal movement. From that time until I saw him the symptoms were typical. Tenesmus, vomiting, bloody stools and constipation were present. Upon examination I found the abdomen greatly distended and extremely sensitive, so that I could not make out the tumor. His pulse was 128, small and compressible, respiration 40, and temperature 99°. He had fecal vomiting at frequent intervals. I did not unnecessarily distress the child by examining through the rectum, although had I done so I am sure from the position of the tumor I should have been able to feel it. My diagnosis, based entirely upon the history, was that of intussusception, and I informed the family that the child would within a few hours die; but at their urgent request and with a clear understanding that the boy would in all probability die under the operation, I consented to open the abdomen. I had the child removed at once to Mercer Hospital, Trenton, and within an hour opened the abdomen, and found low down in the pelvis on the left side, close to the sigmoid, a portion of small intestine invaginated for about five inches; near the constriction were numerous ulcerated spots and beginning gangrene. The bowel was firmly adherent and could not be drawn back. Above the constriction the intestines were intensely red and greatly distended. At this stage of the operation the child began to sink rapidly, and without further effort to repair the bowel the abdomen was closed. In about fifteen minutes the child died. After death I removed the specimen.

Very truly yours,

JOSEPH B. SHAW.

TRENTON, N. J.

#### *APOCYNUM CANNABINUM AGAIN.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Referring to the alleged utility of *Apocynum Cannabinum* in dropsy, I beg to say that I have used the drug in the form

of fluid extract in three patients, two of whom were suffering from cardiac dropsy and the third with hepatic dropsy. In neither case did it do any good, but, alas, in one resulted in dangerous cardiac poisoning, and for eight hours I was not sure that the patient (a woman of twenty-eight years) would live a half-hour. A medical friend of mine used the drug in two cases, but without any benefit accruing therefrom.

In a medical journal I see a Cincinnati physician reports its use in a case of dropsy with edema of the feet. He reduced the dropsy, he says, but about that time the patient died from "nose-bleed." His case reminds me of the Irishman who determined to teach his horse to live without food. He complained afterwards that about the time when the "baist" was trained to live without "ateing," it died.

Yours truly,

M. C. JENNINGS, M.D.

CHICAGO, ILL.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I have before me your current issue and have noted Dr. Dabney's claim to the discovery of *Apocynum*, and that his use of the drug and his article on the subject runneth back to a period of "nearly twenty years ago." I have before me, also, a copy of "The American Eclectic Dispensary," published by John King, M.D., of Cincinnati, and dated 1855, which says, speaking of *Apocynum*: "As a hydragogue cathartic, and also as a diuretic, in those instances where this effect is displayed, it has been found most useful in dropsy." *Apocynum* has for more than half a century, while yet Dr. Dabney was in his swaddling accessories, been a strong item in the treatment of "dropsy" by eclectic practitioners. Personally I am a regular practitioner, but I like to see the proper hat hung on the right peg.

Yours truly,

HENRY M. COWEN, M.D.

MT. STERLING, ILL.

#### *THE ADDRESS IN OBSTETRICS.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In the Address in Obstetrics, June number, page 386, the printer has used the word "peritoneum." Obviously it should be "perineum," as it was written in the MS.

Very truly,

A. S. TOWLER.

MARIENVILLE, PA.



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## Original Communications.

### THE PATHOLOGY AND TREATMENT OF CHRONIC VARICOSE ULCERS OF THE LEG.\*

BY ERNEST LAPLACE, M.D., LL.D.,  
Professor of Surgery and Clinical Surgery in the Medico-Chirurgical College; Surgeon to the Philadelphia and St. Agnes's Hospitals.

Chronic varicose ulcers of the leg form a class of cases which not only haunt the hospital wards, but are a burden and lasting reproach to the surgeon. Only those who have

dealt with a great number of these cases can realize the amount of careful treatment they demand in order to reach any degree of improvement, and only these can realize the disappointment and discouragement that follow a return of the trouble soon after the improvement. In order, therefore, to apply the rational treatment to these rebellious sores, we must first consider their pathology.

The varicose ulcer is appropriately named such because it depends for its existence upon a serious disturbance of the superficial circulation of the leg. This disturbance results from the dilated and weakened condition of the veins, producing a certain amount of stasis, distending the skin, causing an

\*Read before the Pennsylvania State Medical Association, Lancaster, May 18, 1898.

edema, which requires a very little traumatism to produce an excoriation, which is the starting-point of the ulcer. If we inquire as to the initial cause of varicose veins we are confronted with a very obscure problem in pathology, and can only say that the walls of these veins are weakened by a process of malnutrition, resulting from an impaired condition of the whole system. The veins are weakened most probably in the muscular coat; the column of blood which they are intended to support excites a stronger pressure within their caliber than they are able to withstand, and as a result dilatation ensues. This dilatation renders the valves of the various veins almost useless in supporting the column of blood, and the veins acquire at times an enormous distention. An erect posture, and especially such vocations as require constant standing, tend to aggravate the pathological conditions just described, and as a result, from the time a slight traumatism or excoriation has removed the epithelium from the passively congested limb, an ulcer exists whose tendency is, by the impairment of the circulation, to grow constantly larger, and to be accompanied by venous hemorrhages.

The effort at repair on the part of Nature immediately results in the formation of granulations and cicatrization. On the other hand infection sets in, and suppuration complicates the case. In the acute stage these ulcers are soft and tender, and rather hemorrhagic, but after having existed for months or years the chronic irritation of the edges of the ulcer and the neighboring parts results in the formation of fibers within the surrounding cellular tissue, whereby a hard callosous condition ensues. This hardening further impairs the circulation, so that in time the varicose ulcers possess a dull pink, glazed appearance, showing a great lack of blood about the parts. This scarcity of blood is due to the compression of the neighboring parts by the chronic inflammation which accompanies the ulcer.

For years, in hospital and private practise, I have given special attention to the treatment of these ulcers. The chief dependency has been the application of the modern principles of asepsis, combined with rest. Having treated the patient so as to improve his general condition, I proceeded under ether to remove freely the edges of the ulcer and scrape its surface, transforming the ulcer into a healthy wound. The patient was then kept at rest in a recumbent position so long

as was required to entirely heal the ulcer. The wound was dressed at proper intervals so as to maintain it constantly in an aseptic condition. In a majority of instances, by dint of great efforts, I succeeded in healing the ulcer. The patient would be advised to wear an elastic stocking, and to keep off his feet as much as possible. It was impossible in many cases to follow this advice, inasmuch as most of the patients belonged to the laboring class. As a result, from use of the limb, I often found that the place where the ulcer was soon became congested, blue, and swollen, reproducing the same old ulceration. It is in these cases that both patient and surgeon feel so discouraged.

Analyzing these unfortunate cases, I find that the treatment of the ulcer was based on the proper principles. I removed the cause of the ulcer by placing the patient in bed, eliminating the passive congestion which accompanies the varicose vein. The ulcer was healed by removing the infectious element and transforming it into a healthy aseptic surface, whereon Nature was enabled to build fibrous tissue and cover it up with epithelial cells. So far everything was correct and the indications of treatment were properly fulfilled. But from the time that the patient was allowed to walk again, and the same original cause was again at work, it was natural that the effect should also be the same, and show itself in the return of the ulcer. The weak point in the treatment, therefore, was the fact that the varicose veins and their effects were not permanently eliminated. I believe that the removal of the cause—that is, the cure of the varicose veins—should be the initial step for the successful treatment of these ulcers, and therefore advise that all the veins of the leg be ligated and obliterated as the first step in the treatment. The treatment of varicose ulcers of the leg, acute or chronic, to-day should resolve itself into a radical cure of varicose veins of the leg, and as a result the ulcer will immediately take on a tendency to heal, and will require only ordinary attention to help the healing process. Furthermore, the cause being removed in the complete obliteration of all the superficial veins, the ulcers once healed remain permanently so, allowing the patients to attend to their work with impunity.

For the obliteration of the veins I have performed one of two different operations according to the nature of the varicose veins. In some instances the superficial veins of the

leg are persistently dilated, but the long and short saphenous veins are not distended. In this case a catgut ligature is applied to these veins as they enter respectively the saphenous and popliteal veins. This method was advised by myself in the year 1892, and has met with success in this class of cases. Inasmuch as these two veins drain the whole of the venous circulation, their ligature results in a simultaneous stasis and coagulation of blood within all these superficial veins. Their obliteration soon follows.

On the other hand, when other great masses of enlarged veins form on the limb, and do not affect the saphenous vein above the knee, I practise Schede's method, which consists in making a circular cut, about two inches below the knee and directly through the skin, separating all the veins as they present themselves, clamping them, and subsequently ligating them with catgut. The circular cut is then carefully sutured. This is the most effective method of stopping the superficial venous circulation and obliterating the veins, which hampered the process of healing.

These wounds, after the obliteration of the veins, heal most kindly when thoroughly aseptic, and from the first the operation exerts a beneficial effect upon the ulcers. They immediately acquire a more healthy appearance, and granulations set in which effectually build tissue, while the surrounding epithelium grows and covers the ulcer, completing the healing process.

The combination of an operation for the obliteration of the venous circulation and the proper local treatment of the ulcer according to modern surgical methods fulfil all the indications in this rebellious class of cases. Since I have adopted this method I have obtained very flattering results in the most obstinate, old and callous ulcers at the Philadelphia, Medico-Chirurgical and St. Agnes's hospitals during the last three years. A series of eighteen ulcers of the worst varieties healed and remained so. A detailed description of the cases would be rather tedious, since the principles involved in each one are precisely the same, and only require such modification as the peculiar location and character of the sore may demand.

I believe that syphilis and tuberculosis may complicate at times these varicose ulcers, hence we should never lose sight of the diathesis under which the patient may suffer, so as to eliminate it by the proper treatment before the surgical aspect of the case is undertaken. In syphilitic ulcers accompanied by

varicose veins we have given a general mixed specific treatment in addition to a local application of a salve consisting of ammoniated chloride of mercury five grains to one ounce of vaselin.

When the sore had taken on a healthy appearance, and the tissue seemed comparatively free from specific poison, the operation upon the varicose veins was undertaken—not before. In tuberculous ulcers, complicated by varicose veins, a general tonic treatment was given consisting of the syrup of hypophosphites and a local application of iodoform powder. I always take care, however, to first remove all diseased tissue by the curette, and paring the edges of the sore. When the healing process, after the wound had become healthy in character, seemed slow, threatening to take a long time before the epithelium would spread over the edges and cover the surface, skin-grafting was practised, according to Thiersch's method. The granulating surface was thereby covered thoroughly with epithelium, and in the course of two or three weeks would be completely healed.

This process of skin-grafting consists in removing large strips of epithelium from the thigh in the following way: Having rendered the strip aseptic it is made tense by being supported between the thumb and the middle finger of the left hand; using an ordinary razor or sharp knife, the instrument put at an angle of 20° to the thigh and practising a see-saw motion, the epithelium is, if possible, removed without penetrating below the papillary layer of the skin. These strips of epithelium may measure one-fourth to one-half inch in width, and three, four or five inches in length, according to the necessities of the case. Aseptic gauze is applied to the spot whence the epithelium was removed and secured by a bandage; this will suffice as treatment for this excoriated surface. The spots of epithelium are made to cover the ulcer completely, and are secured in position by several thicknesses of sterilized gauze smoothly laid over the parts.

Should suppuration, however, set in, and the life of the grafts be in danger, this danger is overcome by the various layers of the gauze having been made detachable, so that when the dressing is removed all the layers of gauze can be taken away except the lowermost layer. In this way the growths are not disturbed. The secretion and pus can be removed effectually through this lowermost layer of gauze.

Peroxide of hydrogen will clean the wound thoroughly through this one layer of gauze, and the application of any antiseptic solution is made possible without disturbing this last layer. In this case it becomes necessary to repeat our antiseptic washing at least every day. At the end of a week or ten days it will be found that all of the grafts have adhered, whereas, should all the dressings have been removed when there was evidence of suppuration, usually on the third or fourth day, these grafts would have been sacrificed.

I believe this to be a very practical point, essential to success in a great number of cases. From experience I have found that it is not always possible to devote our best endeavors to maintaining an aseptic condition of the ulcers, especially if they have been grafted. A light bandage applied to the limb for a short while before the patient is allowed to get up suffices to complete the treatment of what has for a long time been a very distressing condition, both for the patient and for the surgeon.

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*THE VALUE OF DIPHTHERITIC ANTITOXIN IN THE TREATMENT OF MEMBRANOUS CROUP.*

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In the preparation of this paper I have not thought it necessary to lengthen it by discussing the nature and cause of diphtheria or the propriety of using antitoxin in its treatment. If the value of any new remedy has been almost universally acknowledged by the profession, it is antitoxin in the treatment of diphtheria. The reduction of the death-rate in this disease after its employment has been so marked that one can hardly find a physician of standing who will question the propriety of its use. What may be said of its use in general in this disease may be also said in regard to its employment in laryngeal diphtheria. In those cases where the membrane extends from the pharynx to the nares and larynx, its value is unquestioned. This class of cases, a large majority of which under the use of the old remedies we expected to see die, we now treat with a reasonable expectation of success. All now regard antitoxin as the remedy *par excellence*.

So much as a prelude to the value of the use of antitoxin in a class of cases generally designated as membranous croup.

I do not care to provoke a discussion upon

the identity or duality of membranous croup and diphtheria. I believe that so far as the histological characteristic of the exudate is concerned, no difference is found. I also am willing to concede that in about eighty-five per cent. of cases of membranous croup examined, the Klebs-Loeffler bacillus is present. Pathologically it would seem that membranous croup is simply diphtheria locally manifested in the larynx. When we come to the clinical side of the subject, how is it? I know that in practise in a large city, where one very seldom sees a case of croup without an exudate in the pharynx and all the depressing symptoms found in diphtheria, one will be persuaded that there is only this clinical difference, namely, there is added to the signs of an exudate in the pharynx the other distressing symptoms due to stenosis of the larynx because of pseudo-membrane deposited on its mucous surface. Unfortunately for the children, membranous croup is found in localities other than those densely populated and where diphtheria is endemic. In the country, in smaller cities, towns and villages pseudo-membranous croup prevails, and its clinical characteristics are wholly unlike diphtheria, except only the symptoms which one would naturally expect—laryngeal obstruction. All these cases are attended with a frightful mortality.

The fact is that prior to the introduction of antitoxin in the treatment of this disease, the physician who was called to one of these cases, fully developed, expected it to die. I saw my first case in 1878. Since then I do not think a year has passed without either my seeing one or more cases of my own or seeing one in consultation. Prior to this last year I never saw but one well developed case get well, and that was in a boy thirteen years of age. Perhaps others situated as I have been may have been more fortunate, but this has been my experience.

Now what is the clinical picture of the cases I have treated? and I believe they are the same as those of other physicians who have been situated as I have been. First, as a rule, the children attacked are strong and healthy, excluding those cases which occur following measles and scarlet fever. The first thing noticed is slight hoarseness, which gradually increases. There is some elevation of temperature, with increased heart's action. The child, however, feels reasonably well, and in the very large majority of cases is allowed to be up and around or even play

out-of-doors. In nearly all of these cases an examination of the throat will reveal no exudate. The hoarseness and fever gradually increase, and before very long slight laryngeal obstruction is observed, followed by complete suppression of the voice. After a greater or less length of time this obstruction becomes marked. The inspiration is prolonged and becomes labored; the muscles of thorax and abdomen are called into increased action; there is precordial and intercostal depression on inspiration. Cyanosis supervenes, and unless relief is had the child dies from exhaustion, the result of its labored effort to get air and from carbonic acid poisoning. There are no symptoms of depression or septic infection so characteristic of diphtheria. The child dies from strangulation and not from systemic infection.

These cases are, almost without an exception, sporadic; they are not infectious. I have never known of two cases occurring in the same family, nor have I ever witnessed anything in this connection which would indicate a possibility of the disease spreading from one family to another. If the disease is diphtheria, it is so mild, so far as its specific character is concerned, as to be unable to propagate itself, or to produce those constitutional symptoms which are so marked in genuine diphtheria.

I have never witnessed a case where there was glandular involvement, nor have I ever heard of a case which after recovering was followed by paralysis or any other nervous sequelæ. The exciting cause of an attack I believe is due to an exposure to sudden changes of the weather, and especially when the prevailing wind is cold and from the northeast and east. These cases are not observed during an epidemic of diphtheria. My observation is that as a rule the croup was manifest at periods of time when there was nothing to indicate that this disease was in any way connected with other cases of diphtheritic disease in the near or remote surroundings; and while I try to quarantine my patient, it is only for the reason that authorities whom I do not care to disregard advise this, and not because I believe the disease is infectious or contagious.

From what I have written it will doubtless be seen that while I do not deny that, from an etiological and pathological standpoint, membranous croup and diphtheria may be one and the same disease, yet clinically they are as different as two diseases can be—that is, different so far as the important symptoms

are concerned. Of course, the symptoms of laryngeal stenosis in membranous croup and laryngeal diphtheria are common to both.

Taking into consideration, then, this clinical difference in croup and diphtheria, and not being fully convinced of the identity of the two diseases, is it to be thought strange that one would commence the use of antitoxin for the relief of membranous croup with but very little confidence in the virtue of the remedy? I think not. Without having full confidence in the propriety of using antitoxin in laryngeal diphtheria, it required a measure of actual trial and experience with this remedy to give me any faith in its use in membranous croup. I have used it, and although a skeptic at the commencement, still I administered it with the determination to give it as fair a test as though I had unbounded confidence in its remedial virtues. I gave it in fairly large doses; I relied upon it to the exclusion of all other remedies, with the exception of stimulants, and in eleven cases had only two deaths. The following is a list of cases and results:

CASE I.—Boy, aged seven years. Two doses antitoxin; recovery.

CASE II.—Boy, aged three years. One dose antitoxin; recovery.

CASE III.—Girl, aged five years. Three doses antitoxin; recovery.

CASE IV.—Boy, aged two years. Three doses antitoxin; recovery.

CASE V.—Boy, aged four years. Two doses antitoxin; died.

CASE VI.—Girl, aged two years. One dose antitoxin; died.

CASE VII.—Girl, aged two years. Two doses antitoxin; recovery.

CASE VIII.—Boy, aged four years. Two doses antitoxin; recovery.

CASE IX.—Girl, aged two years. Two doses antitoxin; recovery.

CASE X.—Girl, aged three years. Two doses antitoxin; recovery.

CASE XI.—Girl, aged two years. Two doses antitoxin; recovery.

The first case was seen October 31, 1897; the last case April 15, 1898. These eleven cases occurred in the practise of my partner, Dr. Yates, and myself (except two, which I saw in consultation). These two had been given the usual remedies without benefit, and only commenced to improve after the administration of the antitoxin. My experience in these cases is somewhat different from what I had been led to expect from those who advocate the use of antitoxin in this class of

cases, viz., that relief did not come speedily. In the first case improvement was seen in twelve hours; in none of the others under twenty-four hours; in some, not until forty-eight hours had elapsed. When improvement came it was marked, the respiration becoming easy in a very few hours. The remedy in connection with the stimulants seemed in a remarkable degree to sustain the little sufferers in their labored efforts to breathe. In the eleven cases the antitoxin was administered twenty-three times; not a single unfavorable symptom was observed, except in one case, in which an eruption appeared after the second dose. In all the others no reaction, no rash, no depressing symptoms of any kind, and no local inflammation or abscess at point of injection. In none were the kidneys affected.

It will be logically argued that this report, if it means anything, is a strong argument in the support of the doctrine of the identity of croup and diphtheria; perhaps—but I do not believe any one will advocate the doctrine—that puerperal fever and erysipelas are one and the same disease, notwithstanding the fact that the antistreptococcic serum is of great value in both diseases and is held to be curative in these cases. One cannot be too emphatic in advising the early use of the remedy, antitoxin, in membranous croup. The sooner it is administered, without doubt the greater prospect of success. Another point, which I think should not be lost sight of: give large doses to begin with, and an increase if favorable symptoms are not observed. Use from 1000 to 1500 units, and repeat in the same or larger-sized doses every twelve hours if necessary. As soon as obstruction is marked and breathing labored, give stimulants in full doses in connection with the antitoxin.

In eight of the eleven cases Parke, Davis & Co.'s antitoxin was used. Its purity and uniform strength cannot be questioned, and the neat and thoroughly aseptic method of placing it in the containers, ready for the physician's use, makes it, I think, above all others the most desirable preparation.

#### *THE CONSERVATIVE TREATMENT OF FIBROID TUMORS OF THE UTERUS.*

By E. E. MONTGOMERY, M.D.,

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The influence of fibroid growths of the uterus upon the general health of the patient is dependent to a large degree upon

the situation of the tumor. Thus an intramural, or mural, tumor of small size which encroaches upon the mucous membrane will early give rise to profound disturbance of the menstrual function and consequently upon the nutrition, while an extramural growth will remain without symptoms and only be discovered by accident. As the first class produces symptoms, it will necessarily compel consideration of the best method for combating its baneful effects, but those growths which develop beneath the peritoneum and are only recognized by accident may seriously lead to question as to the wisdom of their being subjected to any interference.

Considering all uterine fibroids, it becomes then a question, first, as to what may be considered proper reasons for subjecting them to treatment, and second, what shall be the course of interference. Among the indications which will be so apparent as to require no discussion is the occurrence of hemorrhage at the regular period, but excessive in quantity, causing the length of the period to be greatly prolonged; or intermenstrual irregular bleeding, induced by exposure, fatigue, excitement, or the sexual relation. In either class of cases the patient may become profoundly anemic and a lowered state of vitality result, which will be favorable to the development of intercurrent diseases.

Instead of hemorrhage the patient may suffer from a profuse, enervating mucus, or muco-purulent discharge. Small growths may cause agonizing pain, uterine contractions similar to those of parturition. This symptom characterizes the intra-uterine fibroid, which the organ regards as a foreign body, and upon the expulsion of which all the energy of the uterus becomes concentrated. The pain may be so great as to demand the use of morphine for its relief, thus endangering the formation of a pernicious habit. Pressure upon the pelvic veins may produce edema of the lower extremities, of the vulva, and even of the tumor itself. Symptoms of peritonitis may develop trouble with the bladder, the rectum, or one or both ureters. Such diseased conditions are most frequently produced by pressure. I have repeatedly seen pressure upon the ureters result in their dilatation and that of the pelvis of the kidney until the latter organ was sacculated, with the greater portion of its structure destroyed. Large growths will disturb the respiration. Fatty changes are likely to occur in the heart. Necrosis may occur in the

structure of the tumor, with the formation of pus, thus greatly increasing the danger either with or without operation. Degenerative processes of a malignant character are possible. Sarcomatous infiltration of the tumor is the most frequent form. With mural fibroids I have twice seen the mucous membrane of the entire uterine cavity undergoing epitheliomatous change. The influence upon pregnancy is not without interest. Occasionally a fibroid will disappear under the changes of pregnancy and the subsequent puerperium. Not infrequently the patient will abort; sometimes the tumor, as the result of the increased tissue change in the uterus, will so rapidly enlarge that interference becomes necessary to relieve the oppression. Where the patient reaches the full term of pregnancy her danger is by no means past. The tumor may be so situated as to prove an obstacle to the progress of labor, or the involvement of the uterine wall cause irregular and ineffectual contractions, thus greatly delaying delivery.

The bruising of the tumor capsule during labor sets up inflammation, favors infection and subsequent suppuration. The processes of involution may arrest the nutrition in the growth and lead to loss of vitality and necrosis. Patients advanced in years are often advised that the menopause will arrest the growth and even lead to a decrease in its size, with relief from all of its annoying symptoms, but experience demonstrates that this cannot always be assured. In the mural and intramural varieties, the climacteric is generally delayed, pain and hemorrhage are increased. Even subsequent to the menopause abnormal changes are not precluded.

A deposit of calcareous material can take place in the tumor wall, and the circulation be so involved that necrosis results. The advent of the menopause does not always mean arrest of growth, for these tumors frequently increase in size. This enlargement is, however, more frequently produced by edema than from actual tissue growth.

Medical treatment affords but little encouragement. It is ineffective to control hemorrhage, and while it aids in securing the extrusion of the growth and thus renders it more accessible to surgical procedure, it is exceedingly tedious and not without danger from necrosis through the too marked interference with nutrition.

The various alterative and absorbent remedies have not produced results worthy of consideration.

The disappearance of such tumors under

the employment of electricity has been so rare as to justify doubt in the correctness of the diagnosis and observation. Generally, electricity does afford relief by diminution of the blood-pressure in the uterine wall, reduction of the inflammation in the connective tissue enveloping the growth, diminution or cessation of the pain, and the disappearance of the hemorrhage; but these beneficent results are not always secured.

Various other methods of local treatment, such as dilatation of the neck, section of the enveloping mucous membrane, massage of the uterus and tumor mass, hot douches, intra-uterine injections of solutions of iron or iodine, curettement, castration and ligation of uterine arteries, are neither always effectual nor free from danger. I saw one patient have a severe pulmonary congestion and edema following an intra-uterine injection for the control of hemorrhage induced by a submucous fibroid. The same patient later became insane. Curettement may be followed by suppuration in the tumor or its capsule, and cause death from sepsis. Ligation of the uterine arteries, while attended with some danger of sepsis, still leaves the growths, which must undergo a process of retrogression not unattended by possible peril. Aside from the limited number of cases in which a pedunculated fibroid could be removed through the vagina, until within a few years no other opportunity was afforded the patient suffering from growths in other portions of the uterus for their removal than through a sacrificial operation involving the uterus, tubes, and ovaries.

While not claiming to present an original device or method of procedure, it is my purpose to maintain that there are many uteri from which a sessile, submucous, an interstitial fibroid or multiple growths can be removed by enucleation, leaving a healthy functioning organ. This practise under proper aseptic precautions is attended with less shock and discomfort to the patient than the apparently more simple operation of extirpation of the organ. Whether the growth shall be attacked through the vagina or by way of abdominal incision will depend upon its situation, size, and the previous condition of the patient. Pedunculated or sessile, submucous and interstitial growths which have not attained too large a size to pass through the pelvis should be attacked through the vagina, unless the patient is unmarried and the vaginal orifice undilated.

When the growth is so large as to rest

above the brim of the pelvis, the uterus occupied by multiple growths, possibly comprising every variety, or the vagina small, the abdominal route is preferable.

Necessarily, not every patient will present conditions favorable for such an operation. The uterine structure may be so extensively involved as to preclude its successful retention, or be complicated by disease of the appendages so severe as to render restoration of function impossible. In such cases a sacrificial operation must be done. The ideal operation is one which removes the disease and leaves an organ capable of performing its normal functions. This operation may be done more frequently than it has been practised in the past. It consists in an enucleation through a minimum incision, using for this purpose a blunt dissector as occupying less space and affording less danger of carrying infection to the injured tissues.

The operation is done either by the vagina or through an abdominal incision. In the majority of cases the abdominal incision would be required. Small growths more or less pedunculated, which have partially or completely dilated the cervix, produce but little difficulty in either diagnosis or treatment. Where the cervix is not sufficiently dilated to afford investigation and exit for the growth, a bilateral incision can be made and the tumor rendered more accessible. Where the tumor is situated within the cavity of the uterus, with a cervix which is more or less long and undilated, the difficulty is more marked. An investigation of the situation and the size of the growth with its relation to the uterine neck is an important prerequisite to an operative procedure. To secure such an investigation is necessary that the canal should be dilated in order to permit the introduction of the finger. This dilatation may be accomplished by repeated gauze packing (Vulliet), dilatation with bougies (Hegar), the use of tents, or bilateral incision of the cervix to or beyond the internal os (Péan). Bilateral incision would seem too radical a measure for a mere diagnostic purpose, and with proper dilatation will be unnecessary for the removal of some growths. The situation of the incision would be impracticable, or embarrassing, in the treatment of others. Vulliet's method is slow and not always effective. The use of bougies will cause the cervix to be badly torn before the canal is sufficiently opened to admit the finger. Dilatation by tents is the most satisfactory. Sponge tents are the most effective,

but are so difficult to render aseptic and so easily infected that their employment is not advisable. The hollow laminaria tent of good size will in the great majority of cases render digital exploration possible within twelve hours. Where the canal is insufficiently dilated with the first tent, it may be carefully cleansed and the dilatation accomplished by a second relay of tents. If the surgeon is unprepared for operation at the time of the digital exploration, this dilatation may be maintained twenty-four hours longer by gauze packing. Rigid asepsis must be the rule in all these procedures. After the tumor has become accessible to the touch, further procedure must depend upon its situation, size, and relation. A small pedunculated tumor will in this manner be almost as accessible to manipulation as if it were situated in the cervix.

Recently I treated an unmarried woman, thirty-five years of age, who had suffered for over a year with irregular menstruation. The periods, which had formerly lasted from one to three days, now continued from ten days to two weeks. She had frequent severe cramp-like pains during the period. The uterus was but slightly enlarged. Near its fundus could be recognized a hard mass which was slightly movable. Two laminaria tents were introduced on the 14th of January, 1898. Upon their removal the following morning the finger could be introduced to the fundus and a fibroid polypus was discovered. A tenaculum was passed on the finger and caught in the pedicle. The tumor, steadied by this, was hooked by a second, with which it was delivered, the small pedicle breaking. Subsequent careful exploration disclosed this to have been the only growth. The fibroid was the size of a small hickory-nut. Convalescence was undisturbed.

In 1885 I saw an unmarried woman, forty-five years of age, who was so exsanguinated by repeated hemorrhage that the condition had been pronounced malignant disease. Dilatation with laminaria tents revealed a sessile fibroid the size of an egg situated in the posterior wall, which was delivered by enucleation after bilateral incision of the cervix. The cervical wound was sutured. The patient recovered after a prolonged convalescence due to faulty technique.

In September, 1896, a young married woman came under my observation, who had begun to suffer from dysmenorrhea and menorrhagia after a fall from a hammock.



Her health was broken and the condition aggravated by a valve lesion, causing mitral regurgitation. Owing to her constitutional condition, efforts were made by the use of ergot, and subsequently thyroid extract, to relieve the condition without operation, but the treatment was attended with such unpleasant results that it was discontinued. The fundus of the uterus was considerably enlarged. Dilatation revealed an interstitial fibroid the size of an egg in the posterior uterine wall. An incision was made from the uterine cavity through the intervening wall with the hope that the administration of ergot would facilitate its extrusion, but the drug was so injurious and she became so much depressed that I decided, regardless of her constitutional condition, to resort to radical operation. Under chloroform the uterus was dilated with bougies. A bilateral incision was made through the cervix, the tumor exposed, seized with a double tenaculum, and enucleated. The cavity was thoroughly irrigated and packed with gauze, the end of which was brought out at the os. The canal was restored by lateral sutures. Convalescence was uninterrupted.

In larger growths occupying the anterior wall a bilateral incision is unsatisfactory. The growth may be rendered more accessible by a circular incision through the vagina in front of the cervix, and splitting the uterovesical septum. Then a vertical incision through the anterior lip and wall of the uterus will expose the growth, which can be enucleated. If it is large, its delivery can be expedited by morcellation. Where necessary, one need not hesitate to incise the peritoneal cavity, but where the growth is situated well above the cervix the incision need not extend through the latter, but be made transverse and vertical; in other words, a T incision with the stem upwards, in this way exposing the growth and enucleating it. After the growth has been removed, the uterine incision should be closed with continuous catgut suture, and the peritoneum and vagina reattached to the uterus. Occasionally an incision through the posterior lip will render the growth more accessible, and if necessary Douglas' pouch may be cut into, the tumor or fundus of the uterus turned down, the growth enucleated, the wall sutured, the uterus replaced, and the wound closed.

The abdominal route affords easy access to large and multiple fibroid growths. After opening the abdomen the uterus is raised up, walled off from the abdomen by gauze pads,

and the incision made over the growth where it is most accessible, the mass seized with a double tenaculum, and the enucleation completed with a blunt dissector. Bleeding vessels may be secured by hemostasis. All growths, however small, should be removed. That the growth is submucous or intra-uterine need be no bar to its removal through the abdominal incision. Where possible the growths should be removed through one incision.

Alexander reports twenty-six tumors thus removed; but the uterine structure should not be torn up unnecessarily in order to bring all the growths through a single incision, as frequently less mutilation will occur by making two or three incisions. Previous curettement and insertion of gauze drain where it is probable the uterine cavity will be opened has been advised, but such advice is unwise, because the gauze packing may result in embarrassment in determining it from a growth, and still more if it is necessary to invade the uterine cavity. All incisions should be closed with continuous catgut suture in double rows. Where the incision is deep, the last includes a good portion of the peritoneum. In one patient I removed thirteen fibroids, five of which were intra-uterine; in another nine, the largest of which was the size of a child's head. In one operation I split through the fundus of the uterus into its cavity, extending the incision some distance upon the anterior wall. The surface was resutured and the patient recovered without abnormal symptoms. The largest tumor (weighing two and one-half pounds) thus removed was in a woman thirty years of age, married, in whom the growth had come up the cervix and had dilated the os so that the finger could reach the tumor. As the vagina was undilated its removal through that canal was not feasible. An abdominal incision was made, the uterus raised, and an incision made through its posterior wall. Then with blunt dissector the small uterus was peeled off the very large tumor, leaving quite a large cavity, which was closed by buried and superficial catgut sutures, a gauze drain having been passed into the vagina through the cervix. The woman, with the exception of an elevation of temperature to  $103^{\circ}$  on the third day, did well. This temperature soon subsided, and her convalescence was subsequently uninterrupted. She had been completely exsanguinated, prior to the operation, by the repeated hemorrhages. The great advantage

of this plan of treatment is that it leaves the patient free from mutilation, and even though she should not subsequently become pregnant the hope has not been removed, and the patient is spared the unpleasant phenomena incident to a premature change of life.

Of course it is important in the consideration of any plan of treatment to consider its mortality and subsequent effect on the health of the individual. Engstrom recently reported one hundred enucleation operations with four deaths. In my own experience the shock and constitutional symptoms have been much less marked in these operations than in those of hysterectomy. Another important consideration is the subsequent effect upon the uterus; thus it has been objected to this operation that there may be small growths in the wall of the uterus which are unobserved and may subsequently develop. This has not been the experience, however, in the hands of Martin and others, who have practised this method extensively. Another consideration is the influence upon subsequent pregnancy. In Engstrom's one hundred cases four became pregnant. The difficulty in basing any statistics upon this, of course, can be readily understood, when we take into consideration that of the one hundred and thirteen cases reported by Martin, forty-six per cent. were unmarried, and twenty-seven per cent. were over forty years of age.

Of the four cases reported by Engstrom which became pregnant, one aborted during an attack of typhus at the fifth month, again became pregnant, and aborted at the third month. She had been married seven years previous to the removal of the growth, and was never pregnant. The second had been married and yet without pregnancy. Ten intramural myomas were enucleated, from the size of a hazelnut to that of a hen's egg, besides a pedunculated fibroid the size of a duck's egg. This patient aborted at the fourth month. The third had a tumor the size of a hen's egg enucleated from the anterior wall. Pregnancy followed and reached full term, and she was delivered without difficulty. The fourth case had had three abortions prior to the operation. Intestinal adhesions to the left ovary and fundus uteri were separated in the operation, the left ovary extirpated, and a myoma the size of a walnut enucleated from the depth of the anterior body wall. Eight months subsequently the patient conceived, and at the time of the report was three months pregnant.

Olhausen cites three cases of pregnancy following enucleation.

This operation, then, has the advantage, as we have already noted, that it does not preclude the possibility of pregnancy; that it saves the woman from the psychic symptoms resulting from the sacrifice of important organs; that it is not attended with any more danger than, if as much as, would result from the extirpation of the uterus with the growths.

#### POISONOUS HONEY.

BY RALPH STOCKMAN, M.D.,

Professor of Therapeutics in Glasgow University, Glasgow.

In the THERAPEUTIC GAZETTE of February Dr. Voorhees describes a case of poisoning by honey; and again in the issue of May Mr. Edmund Jenner refers to the same subject and instances the well known case of the Greek troops as described by Xenophon in the Anabasis. Mr. Jenner states that the poison is derived from either the *Nerium Oleander* or the *Datura Stramonium*. The origin of the poison is, however, now well known, as exact researches have been made on this curious subject. It is probable that bees may obtain poison from various plants, but there is now no question as to the special plant which furnished the honey, the effects of which have been so graphically described by Xenophon.

Poisonous honey is still well known in the neighborhood of Trebizond, on the shores of the Black Sea, and in 1887 Mr. E. M. Holmes, of London, obtained a quantity from the British Consul. It was handed over to Dr. J. C. Thresh and myself for investigation, and Dr. Thresh has published a very interesting account of poisonous honeys (*Pharmaceutical Journal and Transactions*, 1887-88, vol. xviii, p. 397), including specially the Trebizond variety. We obtained the active principle of the honey nearly pure, and it gave characteristic chemical reactions, showing that it is identical with andromeda-toxin, the poisonous constituent of *Rhododendron ponticum* (*Azalea pontica*), and numerous other plants of the order Ericaceæ (Plugge, *Archiv der Pharmacie*, 1889). Experiments which I made on animals with the substance extracted from Trebizond honey showed that it had a stupefying effect from paralysis of the brain and spinal cord, the respiration being especially affected, while the heart remained comparatively untouched. Death occurs from paralysis of the respiratory center.

Later Plugge (*Archiv der Pharmacie*, vol. xxix, 1891) made an interesting contribution to the subject, in the course of which he states that it is a matter of popular knowledge in the neighborhood of Trebizond that the poisonous honey is derived by the bees from the flowers of *Rhododendron ponticum*. Plugge, however, settled the matter in another fashion. By means of fine capillary tubes he sucked up the saccharine matter from the flowers of *R. ponticum*, and experimented with it on animals. These experiments gave the characteristic effects of Trebizond honey and of andromedatoxin.

Any one who is interested in the question will find much relevant information regarding poisonous honey in the paper by Dr. Thresh, cited above.

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*EUCAINE HYDROCHLORATE "B" AS A  
LOCAL ANESTHETIC IN THE NOSE.*

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BY LEWIS S. SOMERS, M.D.,  
Philadelphia, Pa.

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In the THERAPEUTIC GAZETTE for January, 1897, I reported a series of cases of hypertrophic rhinitis in which eucaine was used as a local anesthetic, to obviate the pain consequent upon cauterization of the turbinal tissue. In many ways this drug was found to be unsatisfactory as compared with cocaine, especially as to its lack of ability to shrink the engorged cavernous tissue. Since that time eucaine "B" has appeared, and its use in a series of cases, as a local anesthetic in the nasal cavity, forms the basis of this communication.

The drug is a white, crystalline powder, of neutral reaction, and sparingly soluble in water at ordinary temperature, but the solubility is increased by the addition of heat, and in the latter instance precipitation occurs in a short time as the temperature of the solution falls to that of the surrounding atmosphere; this may be overcome, however, by repeatedly warming the solution as desired, the addition of the small amount of heat necessary to raise the temperature being sufficient to clear the solution, not interfering in any way with its anesthetic powers. It is non-irritating and possesses but a small degree of toxic property as compared with cocaine or the previously mentioned form of eucaine, and being closely allied to both these drugs and also to tropacocaine, it partakes in a degree of their general properties. It differs from the other local anesthetics

mentioned, inasmuch as its ability to produce anesthesia is not impaired by boiling, thus allowing of perfect sterilization. It is also supposed to possess a "slight antibacterial action," but this has not been proven and is of little or no value. To properly prepare the solution it is advisable to use sterile water without the addition of an antiseptic, and heat the mixture until solution is effected, when it is ready for use. Wishing to compare this form of eucaine with cocaine as generally used for intranasal anesthesia, it was desired to make a four per-cent. solution, this being the same strength of the latter drug; but preparing it in the same way with water at 75° F., it was found that all the drug would not dissolve and it became necessary to make a three-per-cent. solution, the water taking up a sufficient amount to make a clear solution of this strength.

The cases studied were in both sexes and the ages varied, the youngest being nine while the eldest was thirty-two years. In all cases there was hypertrophy of the turbinal tissues, the inferior generally being selected for cauterization, and chromic acid fused on a probe was used as the cauterant. A three-per-cent. eucaine solution was applied to the parts desired by means of a cotton plug saturated with the drug, but all excess of fluid was pressed out. The plug was then placed in the nostril over the tissue to be cauterized, and as no data was available to determine the time required to produce complete anesthesia, it was allowed to remain *in situ* for eleven minutes in the first case; then the time was reduced by one minute in each subsequent case, until it was found that complete anesthesia reached its maximum in eight minutes after the application of the solution. In less time than this some pain was usually felt when the cauterant was applied, but if allowed to remain for eight minutes anesthesia was as complete as when a four-per-cent. cocaine solution was used, showing that eucaine is as efficient in this respect as cocaine in stronger solutions. The duration of anesthesia is considerably shorter than when cocaine is used, first reaching a maximum in the time previously mentioned, then rapidly diminishing in intensity, so that within a few minutes after the anesthesia becomes complete its effects are dissipated, the time required for the local action of the drug to disappear being about fifteen minutes. This refers to fresh solutions, but after the drug commences to precipitate, which is about the third day after

being freshly prepared, the precipitate increasing in quantity every day after this, the anesthetic properties progressively diminish, but the solution is still useful, its value remaining unimpaired for three weeks; and after this time it is of little value until the end of the fourth week, when it no longer acts as an anesthetic.

In all cases except three no effect was produced on the mucous membrane, it remaining unchanged under the influence of the drug, while in the three cases one gave evidence of a slight degree of congestion very probably due to traumatism from too much pressure in inserting the cotton plug; and in the other two cases shrinking of the membrane was observed in but very moderate amount. No untoward local effects, such as an excessive amount of irritation, were noticed, and what is still more important, there were no constitutional evidences of the action of the drug. Used in the amount necessary to anesthetize the nasal mucous membrane for minor operative procedures, it was found to exert only its local action, and possessed no untoward action at all on the other tissues of the body. It was observed that the unpleasant taste and partial loss of sensation in the pharynx when cocaine is used in the nasal chambers were entirely absent except in one case; this was but trifling, however, and was the consequence of using an excess of the solution to see if this more or less unpleasant action would take place. That it did not occur in all the other cases is probably due to the slow action of eucaine as compared with cocaine, and not to a smaller amount of solution, for the same quantity was used, it being desirable to have all the conditions similar, so that the comparison could be as accurate as possible.

From a study of the results obtained by the use of eucaine "B," the following conclusions as to its value compared with cocaine and the former eucaine may be deduced:

1. Eucaine hydrochlorate "B" in three-per-cent. solution produces as complete anesthesia of the nasal mucous membrane as does a four-per-cent. solution of cocaine.

2. Its action is slower than the latter drug.

3. The anesthesia is dissipated more rapidly than that produced by cocaine.

4. It is non-toxic in the strength and manner here used.

5. As it has no apparent shrinking action on the turbinal investiture as has cocaine, it is therefore less valuable for nasal surgery than the last mentioned drug.

6. It is superior to the former variety of eucaine because its toxic properties are less, it is more rapid in action, is non-irritating, and the same degree of anesthesia may be produced by smaller amounts of the drug.

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#### GLANDULAR THERAPY.

VOGT in the *Revue de Thérapeutique* of May 15, 1898, is reported as having given a summary of the actual state of glandular therapy before the French Congress of Internal Medicine in April of this year. He states that medication by means of testicular juice is generally abandoned, but medication by means of ovarian juice is gaining in favor. The ovary is employed in dry powder or in tablets, or in a glycerin extract. Sometimes patients are intolerant to it, but usually two to four grains a day are given. It is employed in the following diverse conditions: To overcome the results of double ovariectomy, to combat the troubles of the menopause, to overcome sexual atony, to combat chlorosis. It is useful, too, in osteomalacia and for nervous maladies, such as hysteria, neurasthenia, and exophthalmic goitre. Extracts of the cerebral and medullary substances are practically abandoned, save the use of the pituitary body in the treatment of acromegaly. It is stated that practically no good results have followed the use of bone-marrow in pernicious anemia or chlorosis, nor has extract of spleen done good in malarial poisoning.

Brunet has reported a case of chronic bronchitis treated with pulmonary juice, with diminution in the expectoration. Extract of kidney has been used to treat anuria and to overcome uremic poisoning and dyspnea. It is claimed by Gilbert that it decreases albuminuria and modifies the severity of the disease. The suprarenal glands have been used with asserted advantage in asthenia as well as in Addison's disease, but the use of the pancreas for diabetes is still in the experimental stage.

In regard to the value of the liver, it is stated that in a case of cirrhosis with delirium the daily ingestion of three ounces of fresh liver causes the rapid disappearance of cerebral trouble, and that it has been used in the case of severe alcoholic cirrhosis with advantage, the hemorrhage being stopped, the delirium ceasing, and the color returning. In diabetes the results from its use are variable.

# The Therapeutic Gazette

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## Leading Articles.

### THE PHYSIOLOGICAL ACTION OF HIGH ALTITUDES.

The time has passed when pure empiricism dominated therapeutic procedures. At first we began by learning more and more of the physiological action of drugs and so became more successful in their application to pathological processes, and side by side with these advances others have been made in studying the physiological effects of remedial measures other than drugs.

Our attention has been forcibly called to this matter by a paper which has recently been published by Dr. Solly, of Colorado Springs, embodying his remarks made before the Philadelphia County Medical Society upon the "Blood Changes Induced by Altitude." It has been known for many years to medical men that the most powerful means of cure at our disposal in many diseases consisted in sending the patient to a climate which would exercise a favorable influence over his malady. At one time sea voyages of a prolonged character, or residence for many months upon islands situated far off from the mainland, which provided

patients with a pure ocean climate, were the favorite resorts of consumptives, but increasing knowledge has shown us that while the fresh air and sunshine of these regions is distinctly advantageous in the majority of cases of pulmonary tuberculosis, high altitudes give better results. It was thought at one time that the physiological effects of high altitude, both upon the well and diseased, depended upon the diminished amount of oxygen present in the air, but more recently it has been discovered beyond all doubt that these symptoms arise because of diminished oxygen tension, there being at high altitudes a condition in which the molecules of air are more widely separated than at the sea level. It is also a well known fact that after a person has been at an altitude for a considerable period of time he can take more and more exercise with less and less discomfort, and that instead of the altitude making him ill he is very apt to develop a degree of healthfulness in excess of that which he possessed when at a sea level. This is due to the fact that the system produces blood changes as a result of which a greater quantity of oxygen can be absorbed, this change consisting in an increase in the number and size of the red cells and in the proportion of hemoglobin which they contain. Thus, as pointed out by Solly, the ordinary number of red cells, varying from 4,000,000 to 5,000,000 in a healthy adult, may be raised to 8,000,000 by residence at a high altitude of say 15,000 feet; that at Colorado Springs, which has an altitude of 6,000 feet, it may be raised to 6,000,000. In other words, the increase in the blood of a healthy resident of the Atlantic coast after a few weeks' stay at Colorado Springs would be about sixteen per cent.

It is evident, therefore, that in addition to the beneficial influences of pure air, intense sunlight, increased respiratory activity and exercise there are definite hematic changes which are even more beneficial to the invalid. It has been claimed by some that the greater blood count of persons living in a high altitude is merely a relative increase due to dryness of the air, which causes less liquid in the blood; but on the face of it this claim is absurd. The specific gravity of the blood is unchanged by altitude, and the increase which we have spoken of is not simply relative, but actual. Solly also points out that residence at a high altitude produces a normal hypertrophy of the cardiac muscle, and what is still more curious,

that both animals and man after they are acclimated can endure longer and run faster than they could when living at a lower level. Thus he cites the fact that bicycle racing at Denver has shown records which support this statement, and that race horses also make good time. The fact is also pointed out that the altitude produces a reduction of blood-pressure with a relaxation of the vessels, and that as a result the peripheral capillaries are constantly filled with blood, which accounts for the ruddy hue of those persons who live for any length of time at such an altitude as we have named, while the cool air and hot sun act as antagonistic stimulants upon the surface of the body and indirectly upon the nervous system.

One of the most important portions of Dr. Solly's paper is the emphasis which he lays upon the necessity of prescribing a definite climate for a definite case. As he expresses it, "an altitude is a bad climate for an invalid fool," and we might add altitude is a bad prescription for the physician to give his patient without due consideration of the physiological effects of the region and of the individual characteristics of his patient. Briefly expressed, it may be stated that exceedingly nervous patients as a rule do not do well at a high altitude, as it is apt to increase their insomnia and nervous irritation. In addition to this, it is a fact that in most high altitudes the conditions are unfavorable to persons suffering from genito-urinary diseases, and that persons suffering from fatty degenerations of the various organs, and particularly of the heart, do not receive benefit in these regions, but on the contrary may be injured. Finally, it should be remembered that a climate cannot regenerate organs which have been destroyed by disease any more than can drugs, and patients so far advanced in pulmonary tuberculosis as to be necessarily hopeless cases should not be made to spend their energies, their funds and their store of hopefulness in a vain search for the El Dorado of Youth which is as far beyond their reach as was that of the early Spanish seekers after it in pre-colonial days.

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#### THE THERAPEUTIC VALUE OF METHYLENE BLUE.

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A valuable summary of the physiological and therapeutic activities of methylene blue has recently been contributed to the *Revue de Thérapeutique Médico-Chirurgicale* of April 1,

1898, by d'Aulnay. In his concluding contribution upon this subject he gives an interesting and exhaustive list of the diseases in which this remedy has been employed internally, with mention of the names of the clinicians who have employed it, and follows this by another list in which he details in a similar manner its external applications. As he well points out, methylene blue possesses three properties: First, it is a coloring agent; second, it acts as a microbicide or disinfectant; third, it possesses distinct analgesic properties. It is with its microbicide influence that we first became familiar with the drug, and most physicians are familiar with the papers of Stilling in which he described its powers in destroying micro-organisms and urged its use as a local antiseptic. But its value as a pain reliever is even more noteworthy. Combemale believes that its analgesic properties are in part due to the transformation of oxyhemoglobin into methemoglobin, but we cannot understand how this is possible. Amongst the diseases in which it may be employed with a certain advantage internally we find cancer of the stomach, malaria, nephritis, hypergastric acidity, and as an antineuralgic for facial or sciatic pain. It is also said to be useful in rheumatic pains, and has even been given in ataxia and angina pectoris and migraine, with asserted success. A considerable disadvantage in its use is, of course, the manner in which it stains everything with which it comes in contact, and when taken by the mouth it stains the mucous membrane and gives a disagreeable styptic taste. For this reason it is better to give it in pill or in cachet. Absorbed by the stomach and intestine, it colors the capillaries through which it passes and stains the lymphatics—indeed, all the tissues with which it comes in contact are stained by it, except the peripheral nerves.

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#### POISONING WITH BISMUTH.

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Many years ago it was the custom of teachers of materia medica to point out that bismuth was capable of producing poisoning with gastro-intestinal inflammation; later it was found that this substance never produced such symptoms unless it was contaminated by arsenic; and finally, it remained for Villemin and others to point out that it was capable of producing chronic poisoning with the formation of black sloughs in the mucous membrane of the mouth and

gastro-intestinal tract, desquamative nephritis and albuminuria. Still more recently in the *Centralblatt für Innere Medizin* for March 5, 1898, there are abstracts of two cases in which poisoning followed its use. In one of these more than an ounce of a ten-per-cent. solution of airol with equal parts of glycerin and olive oil was introduced into a cold abscess after it had been evacuated. Three days later the patient had severe stomatitis and the buccal mucous membrane was black in color. Although the emulsion was withdrawn from the abscess cavity, this blackening of the mucous membrane persisted for two weeks. In the other case, a man took fifteen to thirty grains of bismuth subnitrate, and shortly after an eruption developed, resembling that of scarlet fever. This lasted four or five days, and the skin then came away in shreds resembling desquamation, this being particularly noticeable upon the hands and feet.

The second case does not appear to us to be definitely one of bismuth poisoning. It would seem to us to be rather one of the dermatitis, occurring by coincidence, perhaps, as a result of the locking up in the bowel by the action of the bismuth of some toxic material. Perhaps it was a case of dermatitis exfoliativa, which in its mild form is sometimes called erythema scarlatiniform.

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#### FOREIGN BODIES IN THE BRONCHI.

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This important subject has recently been dealt with in an interesting manner by Dr. Lendon, of Adelaide, South Australia, in the *Intercolonial Medical Journal*. He was led to study the literature of the subject by the occurrence of a case in his own practise, the case itself being of very considerable interest.

A boy of seven years drew into his bronchus an ebonite shirt stud, was immediately seized with asphyxiation, and was in great distress for a number of hours. For three days subsequently he felt pain in the chest at a spot corresponding to the second right costal articulation. During the succeeding year he suffered from constant cough and an attack of acute pneumonia which commenced with moderate hemoptysis, and finally with a purulent and offensive expectoration. At the end of the year it was also noticed that no air was entering the upper part of the right lung, and fourteen months after the accident he came under Dr. Lendon's care. There was great dyspnea, constant coughing,

profuse fetid expectoration, as much as half a pint being brought up in twenty-four hours. There was also marked evidence of hectic fever. Under these circumstances surgical interference was decided upon, and an incision was made into the chest, one inch of the fourth rib being excised. The pleural cavity was emptied, but puncturing the lung did not show any collection of pus. On breaking up some slight adhesions between the middle and right upper lobe a small quantity of pus was liberated, and while manipulating the lung the operator believed that he felt the stud, but immediately afterward lost it.

After the patient recovered from the anesthetic, during a violent fit of coughing the stud was expectorated. This was followed for a few days by great dyspnea and a rapid pulse, but ultimately the boy recovered and has now been in good health for several years.

Lendon goes on to a consideration of the physical signs of a foreign body in a bronchus and finds that they consist in complete obstruction to the entrance of air on the side which is suspected, dullness on percussion, and on auscultation loss of vocal fremitus and resonance, although if the obstruction be partial air may enter the lung, be retained, and produce some resonance. After the acute irritation due to the presence of a foreign body passes by, there is a quiescent stage followed by one of definite inflammation of the bronchus, lung, or pleura, due to the entrance of a foreign body, and under these circumstances septic pneumonia and hematemesia may develop. When an organic substance is swallowed capable of undergoing decomposition and becoming putrid, we not only have these symptoms but those of septic infection, and an abscess of the lung may form. In conclusion Lendon thinks there is rarely any difficulty in deciding which side of the chest is affected.

In regard to the prognosis he points out that a foreign body may remain in the bronchus for sixty years without causing death, as in an instance cited by Gross, but it is more likely to destroy life in from one to five years.

Another instance was reported by Mitchell in the *British Medical Journal* during 1896, in which a half-sovereign is believed to have been in a bronchial tube for twenty-four years without giving rise to any disturbance of the lung, and a piece of bone has been expectorated after being in the lung seven-

teen years. On the other hand, even in those cases where the foreign body is expelled by the efforts of the patient, or removed by a surgical operation, the danger to life is not at an end since an ulcerative or septic process may have been set up, which progresses even after its cause has been removed.

Where the evidences of pulmonary obstruction or septic infection resulting from the presence of a foreign body are positive, the question arises as to whether it is wise to attempt to remove the foreign body from the trachea or through the chest wall. In regard to this point Lendon evidently thinks that we must decide the question in connection with each individual case, although he rather favors exploration through the chest. It is, however, an undeniable fact that the foreign body can often be removed through the trachea by means of a long pair of forceps, but it is interesting to note that Godlee tells us in the *Medico Chirurgical Society Transactions* for 1896 that he performed an operation upon the chest, and opened a cavity in the lung, but failed to find the foreign body. A sinus, however, persisted, and through it the peg of a top dropped out two years later.

Lendon protests against the operation of direct bronchotomy in the earlier stages, as he thinks its difficulties practically prohibit it. He believes that tracheotomy is the only resource and should be done early before obstructive changes occur in the lung, and he insists that inversion should not be practised when a movable body is present, unless the physician is prepared to do tracheotomy at once if urgent necessity arises.

His article concludes with an appendix covering the thirteen cases so far reported in Australia and giving fourteen references to literature bearing upon the subject.

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#### THE OPERATIVE TREATMENT OF JACKSONIAN EPILEPSY.

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Braun, of Göttingen, reviews a subject which some years since occupied much time in the proceedings of medical societies, and much space in the periodicals, by the publication of a case of severe Jacksonian epilepsy which was not merely relieved by operation, but which was cured and was still well seven years after the time of the report. As a result of the discussion as to the value of the operative treatment of the affection, the profession at large gathered the impression that the permanent cures were few, if any; that a

minor operation, such as trephining, was as likely to be followed by marked betterment as a major one, such as excision of a portion of the cortex; that even when there were distinct lesions, such as cysts or cicatrices or depressed bony fragments, the ultimate prognosis was bad; that even of the ultimate history of the reported cured cases procured few, if any, would be shown to have been permanently relieved of their epileptic attacks.

Braun's case was that of a man twenty-four years old, who suffered from a head injury of the right side in his twelfth year so severe as to produce immediate paresis of the left upper and lower extremity. Four years later epileptic seizures developed, beginning in the left thumb, then involving the arm, later the leg, not accompanied by loss of consciousness. Two years later the convulsions had become more severe, and during them the patient was unconscious. At the first operation, performed in 1889, depressed bone was raised and the contents of a cyst were evacuated. The extreme tenderness on pressure from which the patient had complained was relieved, but his epileptic seizures were not. Three months later a second operation was performed, having for its object the removal of the thickened tissues overlying the motor center for the hand. This also failed of its object. Eight months later the patient was operated on for the third time, the cortical center presiding over the movements of the left hand being extirpated. With the exception of a few light seizures immediately following intervention, the patient after this remained entirely free from epileptic attacks.

Braun has collected fourteen cases in which the motor center found by electrical stimulation was excised. In four of these there was no improvement, five were distinctly bettered, five were reported as cured; but none of these, with the exception of the one reported by Braun, had been under observation for more than fourteen months, hence the cure cannot be justly claimed, since recurrence of convulsions may occur after two or even after three years. Of five cases in which the center was found by its anatomical position and excised, one failed utterly; the other three were not under observation for even six months. A combined statistical study of the cases in which the center as located by electricity was excised, of those in which it was anatomically placed, and of those in which portions of the brain sub-



stance in the region of the Rolandic fissure underlying the seat of an old tumor were removed, shows that of thirty cases nine were improved and thirteen cured, but that only three of these thirteen cases had been under observation for more than three years. This is not a satisfactory showing, but it may be in part due to imperfect technique. Thus, theoretically, cure can only be expected by the accurate and complete removal of a specific center. This can only be found by the electrical current; one too strong will by diffusion confuse, one too weak will not produce peripheral motion. Braun commends a current of such strength that it is perceptible to the moistened finger and is slightly painful to the tongue; it should not produce motion through the dura. Muscular contractures may be absent when the brain at the point of contact is profoundly altered, or when it has been irritated by strong antiseptic fluids, or when it has been chilled by long exposure, or when it is profoundly anemic; possibly also in profound narcosis. The electrode employed is of platinum, two points separated by an interval of about four millimeters. Unless the electrical localization is employed it is quite impossible accurately to place the desired center, and that this has not been done in many operations is shown by the fact that immediate local palsy is not noted in the reports.

A critical review of published cases seems to show that the popular belief as to the ultimate development of an epileptic status which becomes so confirmed that it cannot be cured or even benefited by excision of the original focus of irritation is not well founded, long-standing cases often exhibiting more marked improvement than those of short duration.

In a tabulation of cases of Jacksonian epilepsy treated by partial operation—*i.e.*, those other than excision of a portion of the brain substance—twenty-three cases are noted as cured out of fifty-seven operated on; but of these twenty-three cases it is to be noted that only three had been under observation for more than three years. In so far as the reports of cases are convincing, they show that the results are much better when the trephine is applied over the wound area than they are when the seat of operation is selected because of its marked anatomical relation with the affected brain center. Among the severe cases in which the dura was not opened, one was definitely cured, the patient having remained free of fits for seven years. The best results were obtained when

the bone was either so thickened or depressed that it apparently produced local pressure effects. There was marked improvement in every one of these cases.

Among the eighty-seven collected cases, Braun finds that the epileptic seizures began by facial twitching in eighteen, by movements of the upper extremity in forty-seven—in twenty-three of these latter by thumb twitchings.

Although this paper of Braun's cannot lead to any definite conclusion, it at least shows that operative cure of Jacksonian epilepsy, though extremely rare, is possible, and also that in cases characterized by bone depression or thickening marked improvement may confidently be expected.

Braun's advice as to the method of procedure certainly commends itself as conservative and sensible. He suggests that when the focal epilepsy has followed a circumscribed skull wound the first operation should be confined to the bone or the bone and dura. Should this fail the more dangerous and more radical procedure—*i.e.*, the excision of the motor center as indicated by the electrical reaction—may be undertaken, the cutting being carried sufficiently wide and to a depth of five millimeters; or when there is a deep depression or a spot exceedingly tender to pressure not placed near the anatomical position of the affected center, the trephine should first be applied over the seat of lesion without regard to the center. If no improvement follows the center may be sought later. When there has been a very extensive wound the trephine should be applied over the involved center.

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## Reports on Therapeutic Progress

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### VELANDER'S NEW METHOD OF ADMINISTERING UNGUENTUM HYDRARGYRI.

HOGNER tells us in the *Boston Medical and Surgical Journal* of March 1, 1898, that he desires to present a very interesting case—a pillow-case—which he thinks will be in the future a valuable instrumental means of administering unguentum hydrargyri.

Dr. Edv. Velandér, professor in venereal diseases in Stockholm, Sweden, and head doctor at the great St. Göran's Hospital for venereal diseases in that city, has recently devised this pillow-case for the above named purpose. The writer's own experience in its use is limited to two patients. However, he

has found it so practical, effective, convenient and clean, that he does not hesitate to communicate the facts.

Professor Velander is well known among the profession for the work he has done in this specialty of our art. The Velander method of curing soft chancre by heat is widely spread and adopted with or without modifications. His investigations some years ago on the absorption of mercury in unguentum hydrargyri led him to the conclusion that it is mostly, if not entirely, absorbed by inhalation of the evaporated mercury, and induced him to use in the administration of this drug a combined method of rubbing in the ointment and spreading it out on different parts of the body, and later the simple method of only spreading it over the skin. These facts are now well known. This year he has finally given up spreading the ointment over the skin and relies entirely on the application of the ointment to the inner surface of a pillow-case, which is to be fastened about the patient's body, from the neck downward. This method is now so generally accepted in Sweden that it is there almost the only one at present used in the general administration of mercury externally.

The pillow-case is made of cheap cotton cloth. It measures 38 by 54 centimeters (15 by 21 inches), and has ribbons for its suspension over the chest. The ribbons are placed two laterally at each edge, 12 centimeters ( $4\frac{3}{4}$  inches) above the lower corners, and four upward, namely, two opposite each other at the upper edges, 6 centimeters ( $2\frac{1}{2}$  inches) from the corners. The ribbons are about 64 by 1.5 centimeters (25 by 0.5 inches).

The pillow-case is suspended from the shoulders with the external part of its medicated side toward the body—that is, under the clothing—and is held in position by the ribbons which are tied around the waist and over the shoulders down to the waist ribbons. It is worn consecutively for ten days, alternating every twenty-four hours from the front of the chest to the back, fresh ointment being supplied every night without wiping off the old. After ten days a new pillow-case is applied.

Baths are to be taken once or twice a week, the skin under the pillow-case being washed every night.

Dr. Velander uses, besides this ointment treatment, all necessary local treatment, etc., and with the ordinary attention to the mouth he has not met more stomatitis than usual.

The quantity of ointment used is six grammes ( $1\frac{3}{4}$  drachms), of a strength of two hydrargyrum to four constituents; and, as before said, it is spread every night over the same half of one of the insides of the pillow-slip. The best way of doing this is to spread the ointment over the outside and afterward turn the pillow-case outside in.

This simple treatment is very convenient for the patient, as he can go about comfortably as usual, is not bothered with any painstaking rubbing, easily keeps himself clean, and at the same time can easily conceal his treatment.

The pillow case method is also very satisfactory for the doctor, as the mercury seems thus to be absorbed quicker, with less irritation.

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#### THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.

DOUGLAS POWELL in the Lumleian lectures, reported in *The Lancet* of April 9, 1898, thinks that the treatment of acute heart failure may perhaps be best referred to in connection with that acute disease in which it is frequently met and of which it too often forms the fatal turning point, viz., pneumonia, in which disease the invalidating conditions affecting the heart are: (1) Stress of labor; (2) blood-supply and nutrition impoverished and vitiated; and (3) innervation, excited and debilitated by the effects of shock and pyrexia. How are we to meet, and it may be to anticipate, heart failure under these circumstances? This is really the kernel of the problem before the physician in every case of severe pneumonia. All rational treatment of the early stages of pneumonia tends to lessen the blood-pressure in the lungs. It is in the latter stages, towards the crisis, when the lungs are most extensively consolidated, when the nervous excitement of early pyrexia is yielding to exhaustion, and when the blood aeration is most defective, that acute heart failure is apt to supervene. A running pulse, irregular from loss of vagus control, is the first symptom, soon to be followed by edema of the unconsolidated portions of the lungs frothing up through the bronchial tract to produce that ominous tracheal rattle with which we are too familiar—these are the signs of heart failure threatening life.

There can be little doubt that an exhausted nerve center is at the root of most of the cases of cardiac failure rather than mere overstrain from impeded pulmonary cir-

culation, and there are two symptoms which especially tend to heart failure and are largely instrumental in causing the nerve exhaustion which brings it about, viz., a temperature above 104° F. and sleeplessness. It will be generally noted that the failure comes on suddenly; there may have been one or two preliminary warnings of partial collapse with running pulse and cold extremities, from which the patient may rally, but which are generally followed by more severe and often fatal attacks. At the very commencement of such signs ammonia, which the writer's experience would lead him to infer after a few days of usefulness tends to rather produce cardiac depression, should be changed for a mineral acid, of which dilute phosphoric acid is the best. Some digitalis or strophanthus should be added to the mixture, and strychnine should be given separately either in an extra quantity of stimulant or subcutaneously if the absorbing powers of the patient are at all doubtful. But the most powerful remedial agent is oxygen, since it attacks one of the chief causes of cardiac failure by securing a supply of oxygenated blood to the coronary vessels, and the pulse will be observed to become slower and fuller under its influence. It should be at hand in all severe cases and should be given in good time as an occasional inhalation.

Whilst as a rule we need not in pneumonia attach much importance to a high temperature, in any case where heart failure threatens it must be reduced to a safer level—*i.e.*, by a degree or two—by hot or cold sponging, or, if necessary, by the dripping cold pack.

Another question presses at about this time; it is that of sleep. Most cases of pneumonia get frequent short snatches of "dog sleep," which is all that we can expect and serves to tide them on to the crisis; but who has not witnessed that wide-eyed delirious vigil in pneumonia, and especially in influenzal pneumonia, in which the mind is painfully alert and the senses preternaturally acute, sleep being entirely absent? The writer is in the habit of suggesting help for wakefulness in pneumonia in the form of a small dose of ten or twenty grains of sulphonal taken in hot fluid at 8 or 9 P.M., and with this preliminary a twenty-grain dose of bromide taken at 10.30 is often sufficient to secure some restful sleep. When the temperature is high a single dose of from seven to ten grains of phenacetine may be added to the bromide. When delirium is a marked feature hyoscine in doses of  $\frac{1}{10}$  grain sub-

cutaneously and repeated once or twice may be used sometimes with great advantage.

Cases of persistent sleeplessness almost invariably prove fatal with heart failure, a running pulse, the cardiac action becoming at last merely peristaltic as the blood-clot accumulates in the auricles. Bromides, chloral, sulphonal, are almost useless, and with the gathering serum in the tubes one hesitates to give opiates. And yet in these severe cases morphine should be given to secure a few hours' sleep and to give the nervous system time to recuperate and to allow of some restoration of heart power before it is too late. The writer states that he has seen some cases in which death appeared to be averted by: (1) a strong dose of food and stimulant; (2) one-third grain morphine with atropine; and (3) aeration being maintained by the oxygen current being frequently played over the mouth and nostrils for a few minutes at a time. The oxygen may be warmed as it enters the bag by passing it through a coil of tubing immersed in hot water. It has seemed to the writer that strychnine has rather favored this peculiar sleeplessness of patients when utterly exhausted, but its power as a cardiac stimulant is unrivaled, and its use in cases severe enough to lead up to this condition is quite essential, and it may be renewed on the effects of morphine passing.

The remarks just made are applicable to heart failure in pneumonia, and the author has endeavored to indicate the measures that tend to avert it and combat it when present. He has not dealt with the treatment of pneumonia in any other sense, for to treat the vast majority of cases of pneumonia with alcohol, strychnine, oxygen, morphine and the like would be at best like storming a mud hut with Armstrong guns; to use dangerous remedies, in cases which require only the gentlest treatment and careful nursing, is a great blunder. The fatigue of heart that follows such tempestuous periods is sometimes very great. It is partly nerve fatigue and is associated with an often greatly depressed temperature lasting for many days. It is in part also muscular fatigue. The pulse either remains quick and very soft or it may become very slow and vacillating. Patients should always remain in bed until the temperature, which after the crisis frequently descends considerably below the normal, has had at least a sufficient interval to return to or near the normal range, and cardiac and nerve tonics such as strychnine, caffeine and the hypo-

phosphites will prove valuable on convalescence. Exercise must be cautiously resumed, keeping well within the limits of fatigue until heart power is quite restored.

Acute heart failure in other diseases and from other causes requires a similar handling, varied to meet varieties in the case. Attention should be drawn to the great value of oxygen inhalations in the treatment of heart failure in old people due to fatty degeneration of the organ. These cases are characterized by the usual signs of a rather large and feebly acting heart, together with irregularity of rhythm, there being perhaps twenty or thirty beats fairly reaching the wrist, whilst amongst them are twice as many beats which only very imperfectly do so. Cheyne-Stokes breathing is another remarkable symptom in these cases, which is especially apt to supervene after any fatigue and to come on during sleep. This form of breathing bears no direct relationship to the pulse and is probably an associated degenerative neurosis. The employment of oxygen inhalations several times in the twenty-four hours has a decidedly strengthening influence upon the heart, no doubt by sending some extra-oxygenated blood through the coronary arteries, and it also lessens the Cheyne-Stokes breathing and refreshes the patient. Strychnine is the most useful cardiac stimulant in these cases.

#### RATIONAL ETHERIZATION—A STATISTICAL STUDY.

In the *Medical Record* of January 29, 1898, Dr. M. B. BROUNER writes a paper with this title. He summarizes as a deduction from his experience the following:

1. That etherization should be entrusted only to experienced hands.
2. That a special cone is not necessary for successful etherization. The simpler and less complicated the apparatus the better.
3. That the so-called "force method" of etherization is unnecessary, cruel, and oft-times injurious.
4. That vastly better results are obtained by a gradual, quiet administration.
5. That the amount of ether employed should be minimized, preferably given drop by drop after anesthesia has been fully established.
6. That the evil sequelæ are directly proportionate to the amount of ether employed, and indirectly proportionate to the duration of the anesthesia.

7. That the so-called baneful after-effects on bronchi, stomach and kidney are largely overestimated, and in a large degree controllable.

8. That women require a smaller amount of ether, though a longer time to produce anesthesia, than men.

9. That alcoholic subjects require a longer time and a greater amount of ether to produce anesthesia and to maintain it.

#### THE VALUE, LIMITATIONS AND ALTERNATIVES OF TOPICAL APPLICATIONS IN GYNECOLOGY.

DUDLEY, of Chicago, writes in the *Medical Standard* for April, 1898, upon this subject. He believes that the principal procedures in local treatment are the hot water vaginal douche, tamponade, and intra-uterine applications.

1. *The hot water vaginal douche.* The choice of the syringe, frequency of the douche, time and length of each application, temperature of water, proper use of bedpan, position of patient, and persistence in long continuance of treatment, are all essential factors.

The good results of the douche will be realized only by the strict observance of the following rules in its application as laid down by Emmet:

##### ORDINARY METHOD OF APPLICATION.

1. The douche is ordinarily applied with the patient in the sitting position, so that the injected water cannot fill the vagina and bathe the cervix uteri, but on the contrary returns along the tube of the syringe as fast as it runs in.

2. The patient is seldom impressed with the importance of regularity in its administration.

3. The temperature is ordinarily not specified or heeded.

4. Ordinarily the patient abandons its use after a short time.

##### PROPER METHOD OF APPLICATION.

1. It should invariably be given with the patient lying on the back, with the shoulders low, the knees drawn up, and the hips elevated on a bedpan or rubber sheet, so that the outlet of the vagina may be above every other part of it; when the vagina will be kept continually overflowing while the douche is given.

2. It should be given at least twice every day, morning and evening, and generally the length of each application should not be less than twenty minutes.

3. The temperature should be as high as the patient can endure without distress; it may be increased from day to day from 100° or 105° to 115° or 120° F.

4. Its use, in the majority of cases, should be continued for weeks at least, and sometimes for months. Perseverance is of prime importance.

The douche acts as a vasomotor stimulant and as a cleansing agent.

(a) Vasomotor stimulant: Emmet attributes the good effects of the douche to the stimulating influence of the hot water on the vasomotor nerves, whereby the dilated, congested vessels are made to contract, the congestion lessened, absorption of morbid products hastened, and local nutrition improved. The effect is the same as that of massage after the Brandt method.

(b) Cleansing agent: In pelvic inflammation the vagina is a passageway and to some extent a receptacle for pathological secretions which flow into it from the uterus, Fallopian tubes, pelvic abscesses, from the vaginal mucous membrane, and even from the vulva. Unless kept clean the vagina may become an incubator and a distributing point for bacteria. The value of the douche, therefore, as a measure of asepsis, is self-evident. When local disinfection is required, the douche may have in solution some antiseptic substance, such as lysol, carbolic acid, corrosive sublimate, boric acid, salicylic acid, or peroxide of hydrogen.

The indications of the douche are chiefly in the treatment of chronic pelvic inflammation. The power of heat to stimulate and contract the blood-vessels makes the douche useful in case of uterine hemorrhage. The disposition to extend its use to the routine treatment of a wider range of pelvic disorders should be discouraged.

There are constantly present in the normal vagina great numbers of lactic acid bacteria (Doederlein), whose function is to render the vaginal secretion acid and therefore to make it an unfit culture ground for about ninety per cent. of all pathogenic bacteria. The washing out of the normal germs and their acid secretion opens the way for infection higher in the pelvis. For this reason the indiscriminate use of the douche in the normal vagina is of questionable propriety.

2. *Tamponade.* The principal indications for tamponade are inflammation and hemorrhage.

(a) Inflammation: Tamponade in the treatment of inflammation is designed as a means of pressure, as a vehicle for the application of medicinal substances and for drainage. The pressure effect of the tampon is chiefly useful in the treatment of displacements, especially those due to inflammatory causes. This indication is better fulfilled by Brandt's method of massage. As a vehicle for the application of medicaments, the tampon has

become a routine factor in gynecology. It is often used as a carrier of glycerin to cause a watery discharge from the genital tract and thereby to deplete the vessels and overcome congestion. How far the good results attributed to the tamponade are due to the curative forces of Nature or the associated systemic treatment is difficult to say.

A tampon which is left in for more than twenty-four hours becomes offensive and a possible hot-bed of infection. It should therefore be removed on the day following its application. Its common, indiscriminate, routine use should be discouraged. Its therapeutic value has been much overestimated. If used at all, it should be applied daily. One or two applications a week have little value, except possibly that of suggestion. Drainage of the endometrium for endometritis by means of the intra-uterine tampon will be mentioned later.

(b) Hemorrhage: Vaginal hemorrhage may often be controlled by a tight vaginal tampon. It is, however, better to find and secure the bleeding point. Uterine hemorrhage may demand immediate control. The vaginal tampon which is commonly employed is inefficient and cumbersome. In bad cases it usually fails, and the distention of the vagina by a large tampon interferes with the functions of the bladder and rectum and is a cause of great mechanical discomfort. Intra-uterine tamponade is a more practical, comfortable and effective treatment for uterine hemorrhage. It should be in the form of a continuous strip of aseptic or antiseptic gauze about two inches wide. The cervix having been exposed by a Sims speculum and steadied by a vulsellum forceps, the strip is introduced by a slender dressing-forceps or sound. The gauze should be removed daily, as secretions absorbed by the tampon decompose rapidly and become a powerful source of infection.

If elastic pressure is required, fine lamb's wool is superior to absorbent cotton. For other purposes the continuous strip of aseptic gauze is preferable.

3. *Intra-uterine applications.* The permanent arrest of a long-standing uterine discharge by topical applications to the endometrium is seldom accomplished. The treatment as ordinarily applied does not reach the disease, because it is not only not indicated, but is injurious in the vast majority of cases for which it is used. The prerequisites to safe and efficient intra-uterine applications are a proper selection of cases and a clear pathological indication and definite

appreciation of what the treatment is to accomplish.

The proper selection of cases is arrived at by exclusion. This will lead to the exclusion of at least two large classes of cases:

(a) Cases in which the predominant element is local infection, in which there is a distinct purulent discharge from the uterus, and in which the endometrium is an abscess cavity and the uterine mucosa and sometimes the myometrium the wall of this abscess cavity. If there is a systemic element it is relatively insignificant. In such cases direct treatment to the diseased structures is clearly indicated.

(b) In the second class of cases the predominant etiological factor is systemic; there may be some degree of infection, but this is not the essential factor and should disappear with the improvement of the systemic condition. The treatment of such cases would be clearly not local but systemic.

For the so-called infectious cases the value of topical treatment has until recently been much overestimated and its dangers underestimated. The milder intra-uterine treatment, as ordinarily practised, is long, tedious, and useless. Local treatment, mild or severe, if frequently repeated with indifferent aseptic care, often sets up new infection or carries the old infection to deeper structures. This may dangerously involve the parametric lymphatics and veins, the myometrium, Fallopian tubes, cellular tissue, peritoneum, and ovaries.

Intra-uterine applications are usually effective in proportion to their energy. Only those which have the power to destroy the diseased structures are capable of arresting the discharge. In doing this, however, they may destroy the endometrium, injure the myometrium, and reduce the uterus to a cirrhotic-like, cicatricial condition. Sterility and permanent irritability of all the pelvic organs are the natural results. Numerous operations have been devised with but little success to reopen the uterine canal contracted by the prolonged application of such agents. Contrast this condition with that which follows an aseptic curettage. In the latter condition the healthy abraded surfaces are all ready to reproduce a new endometrium. The routine application of strong caustics to the endometrium is prohibited.

A principal mode of action of electricity is by cauterization, although it is said to have a deeper effect on the blood-vessels. Its continued use may arrest the discharge, but

it is open to the same objection as other caustics. Its chief value is in the soft, flabby, hemorrhagic uterus, especially in the endometrium associated with myoma. The effects of electricity are not limited to the diseased tissue, but may include healthy structures. Its immediate dangers are greater than those of aseptic curettage. Generally speaking the method is not approved.

Intra-uterine gauze tamponade has been extensively used for dilatation and drainage in non-operative cases. Increasing quantities of a narrow strip of aseptic gauze are packed into the uterus at successive treatments until the endometrium has become dilated to a diameter of one-third or half an inch. Such dilatation is said to permit easy and thorough intra-uterine treatment and drainage, especially capillary, when the gauze is in place. The method in the writer's hands has been occasionally successful, but great care is necessary lest the gauze, instead of carrying out septic material, carry it in.

Innumerable drugs and chemicals have been lauded for intra-uterine medication. Carbolic acid and iodine probably meet the requirements in glandular endometritis so far as topical treatment can meet them. In interstitial endometritis ichthyol, although useful, has not entirely fulfilled its early promise.

When the disease is distinctly infectious and chronic, topical and systemic treatment are both inadequate, although both may properly supplement surgical measures. The diseased portion of the endometrium must be removed by the sharp curette. If this operation is thoroughly performed so as to remove the most infectious portion of the endometrium, it is relatively free from danger, offers a reasonable prospective relief, and the curetted mucosa is rapidly reproduced.

The treatment of infectious endometritis, even with the curette, is not uniformly successful. Dilated and obstructed blood-vessels cannot always be restored to their proper caliber; disorganized lymphatics, nerves and glands cannot always resume their normal functions; and regeneration of lost structures is not always possible. In the glandular forms of endometritis the sharp curette offers both a symptomatic and histological cure, but when the disease has progressed to the atrophic stage and the endometrium is physiologically destroyed, only a degree of symptomatic cure is possible. When the endometritis is complicated with extensive chronic

and obstinate pelvic infection, the uterine discharge will persist regardless of curettage or any other intra-uterine treatment, and hysterectomy may be the only way of relief.

The danger and uselessness of topical treatment for the strongly infectious cases is so manifest that few scientific physicians to-day place great value on its use. The situation is, however, quite different in the second class of cases, in which certain systemic conditions are not only the predisposing but the essential etiological factors. These conditions find their chief expression in stagnation of the general circulation; the stagnation is usually associated with disorders of the heart, lungs, liver, and kidneys, and is often found with the uric acid and other diatheses, such as anemia, leucemia, chlorosis, diabetes, gout, and rheumatism. The discharge may come also as a sequel of some acute infectious disease, such as enteric fever, scarlatina, or diphtheria. Not only the endometrium but the mucosa of other organs share in the general condition and become less resistant and consequently more liable to infection.

The uterine catarrh is sometimes apparently a vicarious act. The writer has frequently noticed the cessation or material diminution of a fetid uterine discharge upon reestablishing of the normal functions of the bowels and kidney. Inconsistent as the statement may appear, topical treatment in this class of cases, which clearly do not call for topical treatment at all, has commonly been followed by the best results.

When diligent use is made of topical applications and a cure is effected, it is quite natural to give the credit to that treatment, when in reality the cathartic pill perchance may deserve it; or, in other words, a case of this class may recover in consequence of the proper systemic treatment of the curative forces of Nature, in spite of the associated topical treatment which it did not need and which may even have done harm.

There is a common impression that severe infectious cases should be treated surgically, and that mild, non-infectious cases should be treated by topical applications. The writer takes exception to the latter part of this statement, and says that those cases that are not surgical are generally medical. The endometrium has suffered a vast amount of sometimes mild, generally useless, oftentimes destructive, topical treatment. The uterus has endured an immense amount of abuse, and the absurdity of topical treatment to the

endometrium in such cases is evident when we consider that the uterine catarrh is only one of many local evidences of a general condition. A large proportion of the cases belong rather to internal medicine than to gynecology.

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AQUEOUS EXTRACT OF SUPRARENAL  
CAPSULE IN OPHTHALMIC  
PRACTISE.

KYLE, of Marion, Indiana, reports upon this subject to the *Ophthalmic Record* for April, 1898.

The physiological effect of the extract of suprarenal capsule, when injected into the system or applied locally to the mucous membranes, is as yet imperfectly understood. The chemical nature of the aqueous substance of the capsule is conflicting and indefinite, and the writer states that he is unfortunate in not being able to secure a definite formula. The researches of Gourfein of Geneva, Shaffer and Oliver, and Swale Vincent have gone far to place the extract upon a solid therapeutic basis.

"In the adult the glands are triangular in shape, weighing from one to two drachms, having a cortical and medullary portion, the cortex forming a yellowish shell around the dark red or brown medulla."

Swale Vincent reports a marked physiological difference between the extract made from the medulla and that from the cortex of the sheep or hog. The extract from the medullary portion when injected into mammals was invariably fatal, while that from the cortical portion had no physiological effect.

The powder and extract supplied to the trade is known as saccharated suprarenal gland, twelve grains representing one fresh suprarenal gland. The extract when used in from two- to four-per-cent. solution is a powerful astringent, and in the writer's experience there is no remedy in the oculist's armamentarium that is capable of producing such a remarkable effect. The writer has experimented with the drug in a great number of cases during the past year, and has had no ill-results.

Dr. W. H. Bates, of New York, read a paper before the Section of Ophthalmology of the New York Academy of Medicine, on April 20, 1896; and referred in a concise and interesting manner to the wonderful therapeutic effect of the extract. When used in the eye, nose or throat no smarting or irritation is produced. In the eye there is a sense of

coolness, with no mydriatic or mycotic effect. The conjunctiva, regardless of congestion, turns suddenly pale, due to contraction of the coats of the vessels, and remains so from one to two hours. Nor do we, as verified by Dr. Bates, notice any congestion after the astringent effect has subsided; the conjunctiva, furthermore, manifesting no intolerance from long use of the drug. We notice when applied to the mucous membrane of the nose and throat the same astringent effect as that seen in the eye. For this reason it is especially indicated preliminary to operation upon the turbinates or upon the septum, first, because it has such a decided hemostatic effect; secondly, it prolongs and increases the effect of the cocaine. Furthermore, the writer has found in operations upon the nose, when he has used the extract preliminary to cocaine, that he has been agreeably surprised at the very small amount of cocaine necessary to secure complete anesthesia, and the very little hemorrhage accompanying the operation.

In operations upon meibomian cysts, complete anesthesia of which under cocaine is, as we know from experience, difficult to secure on account of the great vascularity of the parts, we will find by using the extract as indicated that the operation can be done with remarkably less pain than when cocaine is used alone.

The extract is especially indicated in cases of chronic trachoma, characterized by marked vascularity and lachrimation, in pannus, lacrimal inflammation, acute conjunctivitis, panophthalmitis, and iritis. Again, in operating upon the lacrimal duct, complete anesthesia is procured by injecting a few drops of the extract preliminary to the cocaine; the result is so complete that no one should hesitate to give the drug a thorough test.

Care must necessarily be taken in preparing the solution and keeping it thoroughly sterilized. From the nature of the extract we expect it to rapidly deteriorate. To preserve the solution, in addition to frequent sterilization the writer adds a few drops of carbolic acid, or two drachms of an already prepared two-per-cent. phenic acid solution. This makes no chemical change and is one of the few germicides that can be used with the extract. Mercury bichloride cannot be used; when added to the extract it gives a pinkish color, and upon heating turns to a dark red. Frequent sterilization will not alter its physiological effect. It is wise, however, as far as possible to prepare fresh solu-

tions. To do this we take twenty grains of the saccharated gland and a two per-cent. solution of phenic acid; mix, and filter through filter paper. We now have a clear solution of a brownish-red color, which must be kept corked and free from light. Two or three drops in the conjunctiva produce a complete astringent effect. When applied to the mucous membranes of the nose or throat we secure similar results.

In conclusion the author enumerates the variety of cases in which he has used the extract with decidedly beneficial results, both as a hemostatic and as an adjunct to cocaine: Acute conjunctivitis, chronic granular conjunctivitis, operation for the removal of turbinates, exostosis of the septum, polypoids of the nose, pterygiums, meibomian cyst, operations upon the lacrimal duct, removal of necrosed ossicles, and curettement of the attic.

#### THE TREATMENT OF HEMOPTYSIS.

*Treatment of April 14, 1898,* contains an article by SAINSBURY on this ever interesting subject. He begins by telling us that to secure local rest to the chest the patient must not talk, except when absolutely necessary, and then must not raise the voice; that the attendants must not whisper, and above all, there must be no whispering outside the door lest alarm reenter.

A little broken ice to suck occasionally will be of value as an assurance to the patient that something is being done, and a reminder that the patient is under treatment.

The treatment of cough will be more important; it will demand attention at once, and by morphine or opium in some form or other it must be reduced to a minimum.

Here we may mention the value of a hypodermic injection of morphine. This, as Douglas Powell insists, is very serviceable in cases of large hemoptysis attended by much shock and alarm, composing as it does the nervous system generally, and so quieting and regulating the circulation; it will, moreover, check any disturbing cough. Opium, then, or morphine, by the mouth or hypodermically, will be perhaps the first consideration after the securing of rest.

The bowels will next claim attention. It is well recognized that constipation is liable to be attended by a raised blood-pressure, and that a brisk purgative will quickly remove this tendency; if, therefore, the patient be constipated, some purgative—best a saline—should be administered. Even in the ab-



sence of constipation this treatment is beneficial. A quiet, well ventilated room, cool as to temperature, and the above simple measures will secure for the patient favorable conditions. The nourishment should be very bland and unstimulating, and liquid (for one reason because of the ease of administration). Milk cannot well be improved upon; it should be taken cold or cool. Alcohol must be avoided as far as possible, but our hand may be forced if the collapse be extreme.

And now to consider more active treatment. It is admitted that we cannot get directly at the bleeding point, but can we indirectly by the reflex arc reach the bleeding area? Can we throw a stimulus from the surface, external or internal, on to the vessels of the lung?

Bradford and Dean's investigations have shown that the lesser circulation is under vasomotor control, but Osler is right in stating that as yet our knowledge on this subject is very imperfect, and in particular in respect of the relationship between the blood-pressures in the systemic and pulmonary circuits. Still we act upon the theory that we can influence the vessels of the lung by surface stimulation, and so far as the mucous membrane of the trachea goes, Rossbach's investigations seem to furnish proof of this. Accordingly we may apply to the chest the ice-bag, or we may apply very hot flannels, the stimulus yielded by either extreme acting probably in a similar manner. Should the application be continuous or intermittent? This is an important point. Rossbach's experiments showed that the blanching of the mucous membrane of the trachea caused by the external application of cold was not maintained with the prolongation of the application, but gave way to a congestion, venous in type. On this ground, then, as also on the grounds of common sense, which would urge that to get a reflex the nerves upon which we are acting must be neither benumbed by cold nor exhausted by heat (if we use the latter), we should employ temperature extremes intermittently. We may reasonably, then, apply the ice-bag to the chest of the patient for half an hour at a time, at intervals of half an hour or an hour. We would suggest that in cases of extreme collapse the hot application similarly applied might with advantage be substituted.

Counter-irritation by fly-blisters or the mustard leaf is a perfectly safe, and in some cases apparently an efficacious, treatment. The mode of action will be doubtless in part

by a reflex, in part perhaps by the surface, filling of the vessels of the skin. If the latter action does play an appreciable part, the larger the area of stimulation the better. Dry cupping is sometimes applied; its mode of action will be principally derivative, by the filling of the vessels of the skin and of the integuments generally.

Without disturbing the patient, and with satisfaction to him, and without any likely interference with other treatment, the ice-bag may be applied, or the hot flannel, or the counter-irritant, or the dry cup—there is no complication in all this, and the moral effect upon the patient is undoubtedly good.

Thus far the patient has had no medicinal treatment, if we except the hypodermic injection of morphine or the cough lincture, and possibly the aperient, all of which treatments are not of routine but as occasion may direct.

Now, do we possess any drugs which can control bleeding from the lungs? Here we come to the parting of the ways—the oracle of Apollo emits an uncertain sound. Our choice lies in two directions: On the one hand the pointer indicates drugs such as ergot and digitalis, which contract the arterioles and raise blood-pressure; on the other hand, it directs us to drugs such as aconite and to nauseants such as ipecacuanha, which dilate the arterioles and lower arterial pressure.

Theory can justify the use of either, inasmuch as hemorrhage depends on two factors, viz., the rent in the vessel or vessels, and the plus pressure on the same. Contract the vascular area in which is the bleeding point and *ceteris paribus* the escape must diminish; lower the general blood-pressure, and again, *ceteris paribus*, the bleeding must diminish. But the *ceteris paribus* cannot be granted, for at the same time that aconite lowers the blood-pressure it leaves a more lax open state at the periphery—a more open door; and at the same time that digitalis contracts the periphery it raises the blood-pressure, thereby increasing the escaping force. So far as theory is concerned, the whole question turns upon the position of the bleeding point; if this be in the capillary area or in the terminal arterioles, then theoretically the use of the digitalis and ergot group is eminently reasonable, for the local contraction is likely to outweigh in effect the general rise in blood-pressure—but if the bleeding be from a vessel of size, and a portion of that vessel be aneurismal, then the use of digitalis and ergot is most irrational, for the

area of contraction will not include the bleeding point, and the rise of blood-pressure, it would seem, can only favor the bleeding.

To apply these considerations the first need is of a better diagnosis—the possibility of distinguishing between a capillary or an arteriole oozing and a hemorrhage from a vessel of size. Osler says: "When the blood is brought up in quantities—in mouthfuls at a time—it is almost certain either that an aneurism has ruptured, or that a vessel has been eroded." This is too sweeping, for Fagge's case of miliary tuberculosis with no gross vascular lesion proves that without such the hemorrhage may be copious and even fatal, and some of the cases of phthisis ab hæmoptœ have shown an abundant hemorrhage as an initial symptom with no physical signs of gross pulmonary lesion. It will be best, therefore, to qualify Osler's statement by the addition: if the case is of long standing clinically, or is accompanied by well-marked physical signs. In such case theory would say, "Withhold ergot and digitalis." But if the case be one of large hæmoptysis as an early or initial symptom with few or doubtful physical signs, theory would confirm the use of ergot, for the bleeding is probably from small vessels.

The truth, however, is that we are not yet in a position to treat hæmoptysis scientifically in respect of these two classes of drugs, and that whilst we must make every endeavor to be more precise in the reasons for our selection, at present the choice is more or less a random one. On the whole, there is a general agreement that in severe cases of phthisical hemorrhage of all kinds, ergot is perhaps the most reliable drug, administered in full dose, initially, of the liquid extract (two to three drachms), and afterwards in smaller dose of twenty to thirty minims every hour for a few doses (Douglas Powell); or hypodermically in full dose, fifteen minims of the official solution of ergotin (Bonjean), or ergot aseptic—equals four to five grains of ergotine. The hypodermic injection is the more potent agent; it should be made deeply into the muscles. The subsequent action may be maintained either by injections or by doses of the liquid extract, say twenty minims every half-hour for a few doses.

The use of digitalis is indicated in the same class of cases as that which calls for the use of ergot, but we do not know that it possesses any superiority over ergot, and in general it is a drug which develops its effects slowly. Whitla thinks it is useless in an emergency,

but excellent where the hæmoptysis is not large, but persistent. If employed as a means of controlling a sudden large hemorrhage it should be given hypodermically, twenty to thirty minims of the tincture, the dose to be repeated in half an hour if need be. Wood states that thus given its action develops rapidly. Tincture of hamamelis is certainly useful in hæmoptysis, and may succeed when other remedies fail. It is indicated in cases of small but persistent blood-spitting. We are quite in the dark as to its mode of action. Hamamelis may be given in ten- to twenty-minim dose every four or six hours, or the distilled extract of witch-hazel may be given up to two drachms twice or thrice daily, or in more frequent smaller dose.

The use of astringents, *e.g.*, gallic or tannic acid, or of alum or subacetate of lead, is a routine treatment with many. In employing such we must not forget Whitla's advice that in urgent bleeding the remedy must be repeated frequently, and the initial dose be maximal, *e.g.*, of gallic or tannic acid twenty or thirty grains, in one ounce of water, at once, and subsequently a teaspoonful of such solution every twenty minutes. Astringents will tend if anything to raise the blood-pressure, and therefore will associate themselves rather with ergot and digitalis, and both treatments may be combined. If lead be employed, its tendency to lock up the bowels must be watched and corrected. Quite in the opposite direction lies the treatment of hemorrhage by such drugs as aconite and nauseants, yet these have their advocates. The mode of giving aconite will be small and frequently repeated doses, but we have more knowledge of the use of ipecacuanha and of antimony in nauseant or emetic dose, and amongst those who have strongly advocated this method is Trousseau, who has thus revived the practise of Cullen and Willis, of Stoll, and of others. Dujardin-Beaumetz, who also admits the value of this treatment, keeps it in reserve as a last resort. Trousseau's method was to give ten to fifteen grains of powdered ipecacuanha every eight to ten minutes for some four to six doses, so as to cause strong vomiting; he would repeat this treatment without hesitation subsequently if need were. A modification of this treatment, adapted to milder cases, is to give the drug in nauseant dose only, *e.g.*, two grains of ipecacuanha every ten minutes.

Common salt, which is recognized as a remedy in hæmoptysis, acts probably in the

above way; it should be given in one-half to one or two teaspoonful dose dissolved in a very little water; the dose to be repeated till the patient is nauseated.

Here venesection may find its place, a remedy which has at times seemed to control the bleeding in very severe cases. There is no more potent means of lowering blood-pressure. This and the emetic or nauseant treatment will be more clearly indicated in proportion as the patient is more full blooded and the circulation more excited.

The application of firm ligatures around the thighs and the upper arms appears in some cases to have been effective; the *modus operandi* is perhaps by starving the pulmonary circulation by the arrest of the blood returning from the limbs. If this be the explanation this method also will secure a lowered blood-pressure.

To conclude this brief sketch Sainsbury refers to a more recent method which attacks the problem from quite a different point of view. It seeks neither to close the rent in the vessels nor to reduce the blood-pressure, but to heighten the coagulability of the blood generally, and so to favor thrombosis at the bleeding points. This is the treatment by chloride of calcium, which, based on physiological findings, has been developed chiefly by Professor Wright, of Netley. The salt must be given in full dose, fifteen to forty-five grains every four to six hours, or in great emergencies twenty to thirty grains, as an initial dose, and then four to five grains every quarter of an hour for a few doses subsequently, as above. One point of importance must not be omitted. Professor Wright's investigations have seemed to indicate that the coagulability of the blood increases during the chloride of calcium administration up to a certain point, and then declines and may fall even below the normal. Should this be established it will be necessary to administer the salt intermittently. For three or four days the coagulability increases, according to Wright; therefore, during a period not exceeding this, the drug may be given, dissolved either in water or milk, or with the addition of some compound extract of licorice. Chloride of calcium is thus employed at the Victoria Park Hospital.

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*THE TREATMENT OF POISONING BY CARBOLIC ACID.*

*La Presse Médicale* of March 19, 1898, tells us that LANDOUZY gives the following

directions as to the treatment of this condition: Inject immediately by hypodermic syringe thirty to sixty minims of sulphuric ether as a stimulant. Use a rectal injection of two ounces of sulphate of sodium in three pints of filtered water, irrigating the bowel as high as possible after the manner of Cantani. Administer by the mouth or by means of an esophageal tube one ounce of sulphate of magnesia in a quart of hot water, as this will form an innocuous sulpho-carbolate with the carbolic acid. It may be necessary, also, to bleed the patient and then to perform intravenous transfusion or hypodermoclysis, the injection consisting of 300 grains of chloride of sodium in a quart of boiled distilled water. Morphine and heat should be applied to the extremities, and if the fluid which has been injected into the rectum to wash it out has passed away, a small injection of strong black coffee should be given as a respiratory stimulant. Tea and hot punch may also be administered.

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*A NEW OPERATIVE TREATMENT FOR HEMORRHOIDS, WITH REPORT OF CASE.*

J. K. SIMS in the *Maryland Medical Journal* of May 7, 1898, tells us that having made a careful study of the various operations that have been adopted for the radical cure of hemorrhoids, he finds them all subject to various objections, viz., they leave a stump that must slough off, or an open wound that must heal by granulation. This, in a location like the rectum, which cannot possibly be kept aseptic for any length of time, must naturally be a slow process, and in addition to this there is the possibility of serious systemic poisoning should these open wounds become infected with pathogenic microbes. Again, wounds that heal under suppuration leave a great amount of cicatricial tissue to contract and distort the organs.

The operation which the writer proposes, if properly done, will to a great extent overcome these objections. It takes more time and care and is more difficult to perform, but the advantages gained by the patient more than compensate for this additional work. Of course, it may not be applicable to every case, but with suitable modifications it may be made applicable to the majority of cases of both internal and external piles, as well as to polypi and other benign neoplasms of the rectum and anus.

The patient should have a gentle mercurial

purgative on the two evenings previous to the day of operation and a saline each morning before breakfast. This will clean out the bowels and open up the portal circulation, so that we can give the rectum a long rest afterwards. The circum-anal region should be shaved and scrubbed clean and the rectum washed out with a large enema of warm soap-suds or carbolized water. A warm bath is given and clean linen put on. The anesthetic is now administered, after which he is placed in either the lithotomy or the Sims position. Then introduce a speculum (Cook's and Mathews' are the best) and divulse the sphincters as widely as the instrument will distend them. Then with the thumbs still further stretch until completely paralyzed. The piles will now present themselves, but not in their entirety; they should be everted as much as possible and the rectum and circum-anal region well irrigated with a 1-to-2000 mercuric chloride solution. The tumors, one by one, are now caught with four-pronged forceps, pulled out, and held by the assistant; then with a sharp scalpel the mucous membrane is cut through, around the base of the pile, and a silk ligature tied tightly (in the groove made by the incision), including only the blood-vessels and connective tissue. The pile is then cut off close to the ligature, leaving only enough to hold it, and the cut edges of the mucosa are brought together over the stump with continued sutures of catgut. If the tumor is large, with a curved needle pass a double suture through its base and ligate it in two portions; then the mucous membrane is sutured as above.

If there are external piles present also, the same method may be used to remove them, if large and vascular, or if due to a thrombus; but if they are small or are much indurated they may be simply cut off close to the skin, any bleeding points caught with forceps and ligated, the cut edges brought into close apposition with interrupted sutures of silk. The field of operation is again irrigated with a hot bichloride of mercury solution, the parts dusted with iodoform or aristol, the mucosa pushed in well and a small piece of iodoform gauze inserted, leaving the end protruding from the anus. A pad of gauze is placed over the anus, and over this a pad of absorbent cotton is bound firmly with a T-bandage. A hypodermic injection of morphine  $\frac{1}{4}$  grain, with atropine  $\frac{1}{16}$  grain, is given and patient put to bed.

The bowels should not be moved for three

or four days, by which time the wounds should be nearly healed; they should then be moved by salines and enemata. The advantages claimed for the operation are that by leaving only closed wounds, made under antiseptic precautions, we lessen the risk of suppuration and perhaps more serious infection; that they heal in a much shorter time and with less pain and suffering; there is less danger of hemorrhage and of distortion, and perhaps neuralgia, of the rectum, from contraction of the cicatricial tissue.

In regard to external piles the writer emphasizes the advice given by Dr. Mathews in his admirable work on the rectum: "Remove all of the tumor, cutting it off close to the skin," instead of merely snipping off a small portion of it, as is advised by most authors. If small ones are left they are apt to become inflamed, and they, as well as the stumps left, tend to get much larger, often necessitating another operation to remove them.

#### *THE TREATMENT OF INCOMPLETE DEVELOPMENT OF THE UTERUS.*

The *Brooklyn Medical Journal* for May, 1898, contains an article by A. J. C. SKENE on this topic. As he well says, cases of flexion of the uterus are unfortunately rarely seen during the stage of development. The condition is usually well established before the patient presents herself to the surgeon or physician. More than that, the other complications that are so sure to follow this malformation are usually established before they come under our professional care—that is, general pelvic hyperemia and catarrhal endometritis, conditions or affections which are developed from the deranged innervation and circulation, pain and suffering that arise from or are caused by the malformation and consequent dysmenorrhea. It is also a common thing to have (in addition to the general hyperemia of the uterus and a catarrhal endometritis, or it may be adenomatous corporeal endometritis as well) ovarian hyperemia, that in time is likely to run into chronic ovaritis. When such patients can be taken in hand before these complications are established, and the age of the patient is favorable, say anywhere between fifteen and twenty, they can usually be completely relieved; not only that, but they are likely to remain perfectly well. In such cases, when their history is sufficiently clear to enable one to make a diagnosis with a certain degree of positiveness, he prefers to anesthetize,

and then complete the diagnosis and employ the treatment that may be called for.

In the first place, the author states that the most absolute cleanliness and asepsis should be observed in the management of these cases, and when there is no opportunity to cleanse the parts by douches and bathing before the patient is anesthetized, then that thorough cleansing process should be carried out during the anesthesia. Then the examination should be made, the form of flexion clearly made out, and the treatment adapted to the condition found. For example, in case the uterus is found to be rather lax or soft of tissue and the flexion is limited to the body of the uterus, and there is menorrhagia, as there often is in those cases, then the treatment should be moderate—rapid dilatation, curetting to remove any hypertrophic or adenomatous tissue that may exist there, and washing out the uterus with a solution of carbolic acid, glycerin, and water. The dilatation should be to the extent of three-quarters of an inch, or less, say half an inch, according to the size of the uterus; then in place of packing, as recommended by some, he employs a drain, which also acts as a splint—that is to say, a piece of gauze as large as can be admitted into the dilated canal, well twisted and carried up to the fundus uteri and then cut off short at the os externum. This is allowed to remain and keep the uterus in proper shape as long as it is tolerated. The moment that any irritation occurs, indicated by elevation of pulse or temperature, it is to be removed, and if the uterus is disposed to fall back into its flexed form, the packing should be repeated. The packing with the twisted gauze acts not only as a drain but as a splint, and is usually quite sufficient to keep the uterus straight in those cases of soft-tissured uteri and in forward flexion of the body of the uterus alone.

When the flexion forward is confined to the body of a uterus that is unusually dense in structure (and these are the most troublesome cases, because the dysmenorrhea is almost always severe), the treatment is conducted upon the same principles, but carried out in a somewhat different way. In these cases the tissues are so dense and unyielding that unless the greatest possible care is taken there is great liability to laceration of the inner structures of the body of the uterus, and also of the lowest portion of the cervix. When a dilator is used that is too short, the blades of which dilate in a parallel way, if they do not extend to the fundus or near to

the fundus the points of the blades are liable to become embedded in the walls of the uterus, as dilatation goes on, and do very great damage. Very great care should be taken to make the dilatation equal from the os externum up to the entrance of the Fallopian tubes. More than that, it is necessary in these cases to make the dilatation greater in a uterus of dense structure. Of course, the degree of dilatation must depend upon the size of the uterus. Often the uterus is small and dilatation to the extent of half or five-eighths of an inch is as much as can be employed, whereas in a larger organ dilatation to an inch or less might be equally well tolerated. While the dilatation is done under an anesthetic and is completed in the shortest period of time, yet it should be conducted very slowly and gradually, watching carefully that the tissues are stretching and not being lacerated. In case the misfortune of laceration does occur, in spite of all care, the cases usually do badly, or at least not as well as if that accident had been avoided. After the dilatation has been completed, in the same way as in the other condition just described, the same drain is introduced and allowed to remain as long as it is agreeably tolerated. It is repeated again if the uterus is inclined to fall back into its former position, although in all cases of that kind it is impossible to introduce as large a piece of twisted gauze as the first was. In the great majority of these cases there is usually amenorrhea or scanty menstruation, and hence it is not necessary to use the curette, but simply to use the gauze in the way already described.

In the majority of cases just described the treatment here given is sufficient, but if at the next menstrual period there is still dysmenorrhea, and on examination it is found that the flexion has returned in part or entirely, then it is necessary to employ the stem pessary for a time until the tissues at the weak point shall regain their strength and increase in quantity. The stem pessary which the writer employs is the glass rod with a flange at the end of it, choosing one that is long enough to extend up to within about a quarter of an inch of the fundus uteri, and holding it in place by a Peaslee's ring pessary closed in on one side so as to form a cup. A soft-rubber pessary is more easily introduced because it is flexible, and it is more easily borne, and by the use of the douche it can be kept reasonably aseptic, provided it is thoroughly coated with white vaselin before it is introduced.

While the patient is wearing this kind of

support it is very necessary that she should be under continual observation, and that is one argument in favor of treating these patients in hospitals, where they can be closely watched. The writer refers to the fact that many have permitted patients to go around about their usual duties or occupations wearing stem pessaries, but he has never dared to take such risk, and for that reason, perhaps, he has never had any very serious accidents follow their use. Last summer he saw a lady in the mountains suffering intensely from a pelvic inflammation caused by a stem pessary introduced by a New York practitioner who has repeatedly claimed in his writings that he is the most successful surgeon in the business.

In regard to the class of cases now under consideration—that is, forward flexion of the body alone, uncomplicated with endometritis, or ovaritis, or anything of the kind—this treatment is usually sufficient to relieve the dysmenorrhea and overcome the sterility in the majority of cases. The writer was quite surprised to find how many of these patients were cured of their sterility; and yet some, quite a number in fact, have not been cured. There are others who keep well for a time and then the dysmenorrhea returns. This is especially so in cases of the hard or dense-structured uteri, and especially if there are some rudimentary small fibroids in the walls of the uterus. These cases are the most difficult to cure, and they are most likely to have a return of their trouble. The others are much more satisfactory in this respect.

#### AMPUTATION OF THE PENIS; DESCRIPTION OF A NEW TECHNIQUE.

RAMON GUITERAS, in the *Journal of Cutaneous Medicine and Genito-Urinary Diseases* for May, 1898, writes on this topic, and states that it is his purpose to speak simply of anterior operations, and not the so-called extirpation where the whole organ is removed and a urethral orifice is made in the perineum.

Many methods of performing this amputation have been devised, which tend to show that, although the operation is a simple one, surgeons are not as yet satisfied with the results.

These operations differ principally in the methods advocated of making the flaps, and in the instruments used. In the first instance some operators recommend the circular, the antero-posterior, or side flaps, while others

have advised no flaps at all, excepting what can be obtained from the redundant tissue. In the second instance amputation is performed by means of the ligature, the *écraseur*, the galvanic cautery, the galvanic *écraseur*, or the knife.

Many authors have written upon this subject, among whom are Sir William Ferguson, Pearce Gould, Bonner, Erichsen, Humphrey, Earle, Teale, Demarque, Hilton, Treves, Bryant, Stimson, and Bell. Most of these surgeons seem to agree upon one point, and that is that the urethra and the skin should be allowed to remain longer than the corpora cavernosa. They have not, however, mapped out any systematic operation, and for this reason it is the author's purpose to outline the one which he has been in the habit of teaching at the post-graduate school during the last few years.

Before entering into this description it might be interesting to consider briefly the principal difficulties attending this operation that make it so unsatisfactory. They are:

1. Hemorrhage.
2. Retraction of the orifice of the divided urethra within the stump.
3. The narrowing of the orifice by the contraction of the superficial tissue.
4. The wetting of the wound by the urine.

To overcome the first of these, namely, hemorrhage, it is necessary to tie a rubber band or an elastic catheter about the base of the organ until the amputation has been completed, when the dorsal arteries and those of the corpora cavernosa should be caught and ligated with catgut. Any further hemorrhage can be controlled by hot water, peroxide of hydrogen, and the pressure made by the dressing on the flaps.

In regard to the second of these difficulties—the retraction of the orifice of the urethra into the stump—this can be guarded against by cutting the urethra at a lower point (nearer the meatus) than that where the penis is amputated. This is quite generally advocated, and it appears to be the general consensus of opinion that one-half inch is the excess in length to be allowed.

The third difficulty is the narrowing of the orifice by the contraction of the superficial tissue. This is probably the most serious obstacle that the surgeon has to contend with, and operators often try to overcome it by slitting up the lower wall of the urethra and then stitching its mucous membrane to the skin. This certainly makes a large orifice, but the urethra above the point

to which it has been incised is more or less distorted, so that a stricture is liable to occur there, as is the case with most other devices that have, up to the present time, been resorted to. Such a stricture or contraction is even worse than a simple contraction of the orifice, as it extends half an inch or more into the anterior urethra. It seems, therefore, that if the end of the cut urethra protrudes sufficiently and is then well united with the adjoining skin, a better formed meatus will result, and if a stricture of the orifice does take place it can easily be treated by a meatotomy, followed by a dilatation, as in any other case of contracted meatus.

In regard to the fourth difficulty—that is, to the wetting of the parts by the urine—that is a hard matter to remedy, and always interferes with the healing and union of the approximated edges. The best way of overcoming that difficulty is by means of a soft-rubber catheter, which should be passed into the bladder and allowed to remain there for several days. A retained catheter is, however, in every instance objectionable, as independent of the danger of wetting the part with the urine and the urethral fever it may occasion, the pressure it exerts upon the united surfaces tends to cause a slough about the stitches. It is, therefore, hoped that some method will soon be discovered which will supplant that of catheter-drainage in these cases. If any urine does succeed in wetting the united surfaces it should be immediately washed away and the parts cleansed with a boric acid solution.

The method of operating presents no new features when considered *in toto*, but is of a more careful technique than any which has been described heretofore. It is briefly as follows:

The parts having been thoroughly cleansed after the methods of to-day, a rubber band or catheter is tied about the base of the penis, and a circular incision is made through the integument of the organ at a point below the growth where it is healthy. The skin is then dissected back for three-quarters of an inch, thus making a flap, which is rolled upward toward the base of the organ. A sound, about a No. 20 (French) in size, is then passed into the urethra, and held by an assistant in such manner that the penis is at a right angle to the body.

The blade of a straight bistoury is then inserted with the cutting edge pointing upward at the point to which the flap has been rolled, and is worked in between the urethra and

the corpora cavernosa until it comes out at a corresponding point at the other side. The blade is then turned toward the corpora cavernosa and is made to cut through them. The corpora cavernosa are then taken between the fingers of the left hand and traction is exerted upon them while they are being dissected away from the urethra for the distance of one-half an inch. The cutting edge is then turned toward the urethra and, the sound having been withdrawn, it is cut through at this point.

Thus we will see that the operation, as far as it has advanced, consists of an amputation through the anterior part of the organ in such a way that the stump or divided corpora cavernosa has a urethra half an inch longer than itself, and an integumentary flap three-fourths of an inch longer.

The two dorsal arteries and the two arteries of the corpora cavernosa are then caught and ligated with fine catgut, also the small artery of the septum, if present, and any oozing of blood is controlled as well as possible by peroxide of hydrogen or hot water.

The margins of the cut integument at the upper and lower surfaces of the organ in the median line are then caught with the thumb forceps, and traction sutures are passed through each of them at these points, and held by assistants.

The urethra is then caught in the same way above and below the median line, and traction sutures are also passed through it and held by assistants in such a manner that the middle of the cut surface of the urethra corresponds to the junction of the lower and middle third of the cut surface of the integument.

A fine silk suture is then passed through the integument and urethra at each extremity of the canal, passing entirely through the walls of the integument on either side, but only through the walls of the urethra and not through its lumen. These are then tied, thus holding the urethra and skin in place in the relations already mentioned. The integument above and below the urethra is then united by interrupted sutures.

After this, four sutures of fine silk are passed through the integument and the urethra, piercing the lumen. They are then pulled up in the middle and tied on either side. Thus we will see that the skin and urethra are held together by ten sutures, four on each side and one on each extremity, well placed with thorough approximation.

The parts are then washed with sterilized

water and the traction sutures are withdrawn, thus leaving a stump. A sound is then passed through the new canal into the bladder, after which a No. 10 French catheter is passed into the viscus and allowed to remain there for a few days.

The wound is then dressed with iodoform gauze and the catheter is held in place with a piece of adhesive plaster attached to the pubes. Extirpation of the inguinal glands should also be made in cases where these can be felt. The chain of glands implicated, which are found in these cases, are those of the horizontal and vertical sets.

#### *DIPHTHERIA ANTITOXIN AS AN IMMUNIZING AGENT.*

W. M. DONALD writes in the *New York Medical Journal* of May 21, 1898, on this important subject. He is a firm believer in the immunizing power of antitoxin for at least several weeks following its use; but since a large amount of skepticism is rampant among the profession with regard to this power, and since a number of the better men are questioning it, he feels it necessary to give a reason for the faith that is in him. As such, then, and as a contribution to statistical facts upon this moot point, the following records are presented:

On April 2, 1896, a case of laryngeal diphtheria was discovered at the Detroit Protestant Orphan Asylum. During the next seven days, and despite the most rigid isolation and watchfulness, seven new cases developed. Immunizing doses of antitoxin (two hundred and fifty units of Parke, Davis & Co.'s antidiphtheric serum) were then administered to the remaining eighty-seven children, with the result of practically stamping out the disease at once. Ten days afterwards, it is true, one case of pharyngeal diphtheria developed, but the other eighty-six cases remained immune.

During January, 1897, a similar outbreak occurred during the attendance of Dr. Douglas. Before it could be controlled five cases of laryngeal diphtheria had developed, two of which proved fatal.

The selective preference of the germ for the larynx in these cases, as well as the sudden outbreak of the poison (all the cases developing within three days), are matters of interest.

At this time antitoxin in doses of five hundred units was administered to seventy-one children, and in doses of two hundred and

fifty units to nine—the latter being the very young, from two to five years of age. The result in this series was even better than in the preceding one—none of the eighty children developing diphtheria after the injection of antitoxin.

In December of the same year, and during the author's service, another outbreak occurred, two cases being discovered on the 27th and four more on the 29th. On the 31st, assisted by his friend, Dr. E. M. Houghton, he immunized seventy-nine children—twenty-five of the younger children with three hundred units and fifty-four of the older with five hundred units of antitoxin—with the result that four days afterward one child who had received the larger dose, a girl of seven years of age, showed well marked faucial diphtheria; the other seventy-eight children remained well.

Out of the two hundred and forty-six children immunized during these three periods, four developed urticaria of moderate severity and three a slight general erythema. These untoward symptoms passed away in about twenty-four to forty-eight hours, giving no further trouble.

In one case on the last date, December 31, 1897, a hypodermic needle of small size was broken in the buttock and could not be recovered. At this writing, almost five months afterward, no symptoms referable to this foreign body, reluctantly allowed to remain in the tissues, have been manifested. The child is under observation and will be watched closely for further report. After each series of immunizations a number of cases of suspicious sore throat developed, with whitish exudates upon the tonsils, but bacteriological examination revealed only cocci, and no Loeffler germs present in any case.

The writer calls attention to the fact that none of these series of immunizations were conducted immediately upon the appearance of a single case of diphtheria, which might have been considered a sporadic waif, and from which no further cases might have arisen; but that on each occasion several days were allowed to elapse after the first manifestation of the disease. During this time the most rigid system of inspection was instituted—every throat in the institution being examined each morning—and every other precaution taken to prevent the spreading of the disease. Despite these measures the disease spread in each of the three outbreaks reported, and refused to be controlled



until the immunizing doses of antitoxin were administered. After that period, as reference to the above reports will show, the disease was controlled without trouble.

The author also calls attention to the varying dose of the antitoxin employed—two hundred and fifty, three hundred, and five hundred units. This was in the nature of an experiment to determine, if possible, the best immunizing dose.

It will be observed that practically as good results were obtained from the smallest dose as from the largest; one case developing after the use of two hundred and fifty units, and one after five hundred units.

We have thus a percentage of failures of only four-fifths of one per cent. in the whole number reported; certainly a most gratifying showing.

#### *THE PRESENT STATUS OF HYSTERECTOMY AFTER THE MENOPAUSE.*

J. T. JOHNSON contributes to the *National Medical Review* for May, 1898, a paper on this gynecological topic. He believes that the present status of hysterectomy after the menopause is just about the same as the status of hysterectomy before the menopause.

Since accumulated experience has shown that the "change of life" has very little if any influence in arresting the growth of uterine fibromata in a large number of cases, we cannot count with any degree of certainty upon its favorable influence in any given case. For this reason we cannot now truthfully say to a patient seeking our advice on account of a troublesome fibroid that, as she is nearing the average age for the cessation of her menstrual periods, her tumor will soon cease to annoy her, and will disappear altogether when the change of life is fully established. Indeed, many examples of their rapid increased growth have occurred in the writer's limited experience when the patient had passed the thirty years of menstrual life allotted to the average normal woman.

Uterine fibromata prevent the occurrence of the menopause at the usual age of forty-five to forty-seven, and keep up the monthly periods as well as prove a fruitful cause of intermediate hemorrhages, at a time in the woman's life when she is by nature least able to stand such losses of blood.

Not only does menstruation continue in fibroid cases until the woman is between fifty and fifty-five years of age, on account

of the irritation and congestion caused by its unnatural and offensive presence, but the tumor too frequently takes on an increased growth, becoming larger and more troublesome than before the menopause occurred.

It is quite possible in these cases that the popular idea that the menstrual blood, instead of escaping as it formerly did, now goes to feed the tumor has some foundation in fact. One of the strongest indications for hysterectomy after the menopause is the tendency of the tumor to undergo some form of degeneration which of itself may prove fatal to the long-suffering patient.

The writer has operated on two women with large fibroids, who were both over sixty years of age when the hysterectomy was done, on account of the calcareous degeneration of the tumor. After removal they could not be cut open with a knife or chisel they were so hard, and were only finally opened up with a saw.

Sarcomatous, carcinomatous and cystic degenerations occur, and they also break down by the formation of internal abscesses.

The writer recently presented a 21-pound fibroid tumor to the Medical Society of the District of Columbia, which he removed from a lady fifty-seven years of age, and which contained several pints of bloody pus. The Microscopical Committee of the Society reported that the specimen had undergone a sarcomatous degeneration. While the patient made a good recovery, there can be no doubt that if hysterectomy had been delayed much longer she would certainly have lost her life. It is no uncommon thing in reading the accounts of hysterectomies in the medical journals to notice that the age of the patient was stated to be over fifty. Indeed, Dr. Baer, of Philadelphia, the distinguished originator of "Baer's operation," some time ago remarked: "A large proportion of my hysterectomies were upon women who had passed the menopause." Several papers have recently been published upon this subject, notably one by a member of the District of Columbia Medical Society, and another by Dr. Kelly, of Baltimore.

The age of the patient is no bar to hysterectomy. If a woman has a fibroid tumor threatening her life, or seriously menacing her health by hemorrhage, pressure, degeneration, obstruction of the bowels, peritoneal dropsy, or what not, it should come out no matter whether she is thirty or sixty years of age. Hysterectomy should be done in any and all cases for actual or prospective symp-

toms without reference to age or whether the menopause has or has not occurred. The mere presence of a uterine fibroid which produces no symptoms is not a sufficient indication at any age for so radical an operation as hysterectomy, and, *per contra*, dangerous and threatening symptoms on account of malignant disease or a fibroid tumor of the uterus should be met by the complete removal of the growth, even if the entire uterus were involved in the ablation, notwithstanding the fact that the menopause has occurred.

The mortality of this operation, when uncomplicated by malignancy, in good hands and in favorable environments, should not be more than five per cent. The fatal cases are mostly in that class where delay has resulted in the formation of dangerous adhesions, exhausting complications, and death-producing degenerations.

While a certain number of fibroid tumors are favorably affected by the menopause, those which remain unaffected by the change of life are more liable to take on an increased growth, or as stated above, to undergo one of the forms of degeneration already referred to.

The present status of hysterectomy after the menopause is that it should be resorted to whenever the usually accepted symptoms present themselves which gynecologists the world over acknowledge to be of sufficient gravity to require that operation in any other period of life. These indications being present, the operation is less dangerous than the continuance of the symptoms. Ovariectomy is a very successful operation in old women; there seems to be no reason why hysterectomy should not be equally successful.

#### TREATMENT OF DYSMENORRHEA.

KEITH in the *British Gynecological Journal* tells us that uterine dysmenorrhea is caused by a malformation of the uterus, due to want of proper development. To this is added the thickening of the mucous membrane, along with congestion at the time of the menstrual flow.

It is the bend, plus the thickening of the mucous membrane and congestion, which is the cause of the pain; consequently treatment must be directed either to straightening the bend or reducing the circulation.

The usual history is that the patient has suffered from pain every month since she began to menstruate, the pain commencing with the onset of the flow and abating when the flow is fully established.

In old standing cases there will be leucorrhea, and perhaps some menorrhagia.

If married, the patient will never have been pregnant.

On examination, an ante flexion of the uterus is almost certain to be found. If, however, the dysmenorrhea did not commence until after puberty, in addition to the bend something will be found to account for it. If unrelieved, secondary symptoms arise, due to the pelvic congestion, leading in some cases to disease of the ovaries.

The treatment of this form of dysmenorrhea may be divided into two classes: (1) That directed to reducing the amount of pelvic and uterine congestion; this may be subdivided into (a) general and (b) local. (2) That directed to lessening the amount of the flexion or removing it altogether.

General treatment should be thoroughly tried first, because many may be cured or much relieved in this way. The girl should be kept warm and her general health attended to. Plenty of fresh air should be indulged in, with moderate outdoor exercise. As soon as the period appears the girl must be kept rigidly to bed, and not allowed to get up until the pain has entirely gone. A large poultice should be kept over the abdomen, and for medicine a brisk saline aperient at the commencement, followed by a mild diaphoretic. Sedatives should be avoided as a rule. The stem pessary has had its day; it is unscientific, seldom cures, and may do harm.

There are two other means at our disposal, namely, dilatation by tents or the rapid forcible method, and Simpson's lateral and Sims' posterior division of the cervix. The object of both operations is to enlarge the uterine canal. To keep it open it is necessary to maintain a glass plug in the canal until the wounds have thoroughly healed by granulation, and then to pass a bougie occasionally. The result of this irritation is that the cervix is apt to become hard, and symptoms may arise of as much importance as those the operation was intended to cure. As compared with dilatation these operations have no advantage.

Still another method is Dudley's modification of Sims' operation of backward division. The object aimed at is the straightening of the uterine canal and the healing of the cut surfaces by first intention, so that there will be no hard tissue or possibility of the old bend returning. The most essential part of the operation is the accurate stitching to-

gether of each half of the wound made when the cervix is divided. All the cases in which the author has used this operation have been cured, or have been improved.

Where operation is refused the constant current, after Apostoli's method, will give relief, acting in part at least by reducing the pelvic congestion.—*Medical Chronicle*, March, 1898.

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#### THE SURGERY OF THE PREPUCE AND MEATUS.

B. H. DAGGETT, of Buffalo, N. Y., writes on this topic in the *Medical Record* of May 7, 1898. He suggests a new procedure for circumcision which consists of a modified combination of the dorsal and inferior incisions. The dorsal cut is in the central line, extending from the anfractus to within about one-third of an inch of the preputial border. The line of the proposed incision having been marked, a puncture is made at the distal end with a sharp point of the bistoury, and a loop of ligature is passed through this cut, for the purpose of drawing the prepuce tense and holding these mobile and lax structures in proper place for incision. The probe point of thin, long-bladed scissors is now introduced into the puncture, and the entire cut through all the tissues is made with one movement, so that the incision shall be straight, uniform, and inclusive. The inferior incision is made from the preputial margin directly backward for a little more than one-third of an inch, or sufficient to overlap the dorsal incision. These cuts will sever all the constricting tissues of the foreskin. The lower incision is stitched with a fine needle and ligature, so as to unite only the inner membrane and the integument, thus making a thin finished border for the enlarged preputial opening. The foreskin is then drawn back behind the corona of the glans, and these incisions will be transverse instead of longitudinal. The dorsal opening is united by fine sutures in this transverse position, and the edges of integument only are to be stitched together. The prepuce is to be held in this position by the dressings, which are not to be removed for four days, unless there are surgical indications for interference. The writer directs that the surgeon shall brush over the exposed portion of the dressings with Friar's balsam to prevent absorption, and leave the apex of the glans free; then to pack with absorbent cotton, and apply the T-bandage. If the parts become dry and painful, apply properly medicated vaselin or moist

gauze, without disturbing the first dressing. After about four days the healing will be complete or well advanced, when the entire dressing may be removed, freeing the fore-skin so that it may be drawn down upon the glans. This operation shortens and widens the prepuce; it sacrifices no tissue; it neither mutilates nor deforms; it reconstructs and creates a cosmetic esthetic covering and protection for the sensitive glans. "The Tysonian brood" is also preserved in both structure and function.

There is no single operative procedure applicable to all of the varying pathological conditions of the prepuce. The surgeon must choose his method with his patient before him. The surgery of the prepuce will test the mechanical skill and judgment of the operator—it is not a trivial matter.

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#### THE MANAGEMENT OF PATIENTS BEFORE AND AFTER LAPAROTOMY.

WIGGIN concludes a paper with this title in *The Lancet* of April 30, 1898, by calling attention to the points which he thinks of importance, and which, as they are considered minor ones, are often overlooked. They are as follows: (1) The importance, whenever practicable, of prolonged preparatory treatment of patients about to undergo an abdominal operation. (2) The importance of the administration of cathartics in the early part of this period, followed by large enemas for the purpose of cleansing the intestinal tract. (3) The importance of keeping a record of the body temperature, respirations, and pulse-rate for several days in advance of the operation, and of making a final examination of the urine. (4) The necessity, in the female, of arranging to have the operation performed a few days after the menstrual period, and the cleansing of the vagina even when it is intended that the operation shall be by the abdominal route only. (5) The administration of a small quantity of peptonized food (one ounce) containing stimulants two hours before giving the anesthetic, for the purpose of lessening the tendency to nausea and vomiting after the recovery of consciousness. (6) The necessity of the anesthetic being given by an experienced physician and in the smallest possible quantity. (7) The necessity of protecting the patient's body properly with clothing and blankets during the operation. (8) The advantage of stimulating the patient before the heart has become much exhausted and of

using intravenous saline injections before the radial pulse has become extinct. (9) The leaving in the abdominal cavity after free irrigation of a quantity of hot saline solution for the purpose of stimulating the patient, preventing (?) the formation of intestinal adhesions, and lessening the danger of septic infection of the peritoneum. (10) The necessity of making the patient comfortable by change of position during the first two days of convalescence and by the use of the rectal tube. (11) The necessity for the early administration of food in reasonable quantities and at proper intervals. (12) The necessity of withholding stimulating enemata after operations in which extensive and firm pelvic adhesions have been broken up. (13) The necessity for deliberation as to the wisdom of reopening the peritoneal cavity in a given case of supposed concealed hemorrhage. (14) The importance of washing out the stomach as soon as the diagnosis of intestinal paresis is made and of the persistent use of saline cathartics till the bowels move. (15) The importance of not administering cathartics too early or in too large doses to those convalescing from abdominal operations and who are pursuing a normal course.

#### THE PHYSIOLOGICAL EFFECTS OF OVARIAN JUICE.

FERRÉ and BESTION have studied the effect of a glycerin and water extract of ovary and find it to possess distinct physiological influence in males and females, and they find that males cannot stand the dose well borne by females. If a large dose be given to a male he becomes intoxicated and dies, and a female requires double this dose to produce death. The symptoms shown by the male consist in progressive hypothermia, the production of sloughs at the point of injection, excitement of the genital apparatus with erections and ejaculation of semen, and finally tremors and paralysis. Hematuria may develop. They found tubular nephritis, and in the paralyzed animals congestion of the spinal cords, particularly in the area of the spinal center in the lower dorsal and lumbar region. There were also well advanced lesions in the anterior cornua of the spinal cord. Ferré and Bestion conclude that the juice has a distinct effect and that the partial immunity of females to this effect is due to the fact that they are accustomed to the ovarian juice in that doses similar to those which caused death in the male will do so in

females below puberty who are not accustomed to ovarian activity. They believe that ovarian gland should be cautiously given to women who have passed the climacteric for these reasons.—*La Médecine Moderne*, May 1, 1898.

#### THE CAUSES AND TREATMENT OF HABITUAL CONSTIPATION IN INFANCY.

In the *Archives of Pediatrics* for June, 1898, SOUTHWORTH writes upon this subject. He does not hesitate to assert positively that in his experience it is now exceedingly rare to find a child who is artificially fed whose constipation cannot be remedied by intelligent modification of its diet. In beginning the treatment of a case of habitual constipation, it is usually advisable that the intestinal tract should be gently but thoroughly evacuated in order that the obstruction offered by the accumulated or hardened masses may be eliminated. For this purpose he prefers calomel in divided doses. It may be necessary at first to make daily use of mild laxatives, which facilitate the training of the bowel and assure proper evacuations during a gradual increase of certain elements in the previous diet or the addition of new substances, but the laxatives should then be decreased and withdrawn as soon as practicable.

Too often we yield to the temptation to prescribe drugs rather than study out and remedy the essential cause of the constipation. The former give us quicker results and redound more evidently to the credit of our therapeutic acumen, but in resorting solely to their use under such circumstances we are not doing our duty by our patients or by ourselves. The temporary relief or masking of symptoms by therapeutics, when the etiological morbid condition may be permanently removed by more painstaking application to our problem, approaches dubiously near to charlatanism.

Where a mild action only is necessary, the tablets of rhubarb and soda, of each one and a half grains, made up with oil of peppermint, may be dissolved and given once, twice or three times a day, especially in those cases which depend upon disturbed intestinal function. Where this is not sufficient, the fluid extract of cascara proves one of the most reliable of the well-tested laxatives, infants requiring from one to four minims thrice daily. Preparations of malt with cascara have been highly lauded by undoubted authorities. The fluid preparations of malt,

which have already been mentioned in speaking of the malted foods under the head of dietetic resources, should again be mentioned here with the efficient laxatives. Cod-liver oil, which there are good reasons for classing as a food rather than as a medicine, is peculiarly serviceable in those cases dependent upon poor nutrition, in which the addition of a fat is indicated.

In rather older children, where a more decided action is necessary, other drugs may have to be employed in varying combination to meet definite indications. But it is chiefly where the neglected constipation is of long standing, and where from overdistention the muscles of the lower bowel have lost their tone, that we need for any length of time to call therapeutics to the assistance of dietetics.

The longer and more carefully the author studies his cases of constipation in infancy, the less he finds that he needs to resort to the use of laxatives for its cure.

For comparatively short periods enemata may be employed with advantage, but they are capable of abuse. For occasional use they may be large, but when used daily the quantity of fluid should be small, the smallest that will stimulate the bowels to contract. Theoretical considerations lead us to the conclusion that cold injections excite more extended peristaltic contractions, and a saline solution is less irritating to mucosa of the bowel than plain water. Glycerin, a teaspoonful in a tablespoonful of water, is a stimulant, has a hygroscopic action, and is one of the best measures at our command.

For cases which habitually require assistance, suppositories of gluten or glycerin are preferable, as they avoid the loss of tone which comes from frequent distention of the bowel by enemata; but the profession has been warned against the use for children of glycerin suppositories which are medicated. Where medicated suppositories are necessary, they should be made with cacao butter, and the proportions of the ingredients controlled by the physician's prescription.

Much of the constipation of later life may undoubtedly be traced to irregular action of the bowels and the neglect of the formation of proper habits in infancy and childhood; so that when we look beyond the present and consider the ultimate results of intestinal torpor in years to come, the regulation of this function becomes imperative in every case, but we should endeavor to accomplish this by removing the cause through the employment of simple and rational dietetic and hygienic

measures, remembering that the abuse of enemata and purgatives, as pointed out by Earle, will eventually diminish the sensibility of the mucous membrane and produce atony of the muscular coats of the intestine.

#### CHRONIC INTESTINAL INDIGESTION IN CHILDREN.

In a recently read paper DESSAU (*Archives of Pediatrics*, June, 1898) discussed this topic. In connection with it he presented a little boy, ten years old, whom he had seen last January, because of nocturnal incontinence of urine and feces. As the boy had been circumcised in infancy, preputial adhesions could not be blamed for the condition in this instance. The boy had a poor appetite, and was very restless at night. He was put upon proper diet and treated for indigestion, with the result that the trouble for which his mother sought advice quickly disappeared.

Dr. Dessau said that the idea that the more food a child eats the better its health seemed to pervade all classes of society, and with most disastrous results. Infants who regurgitate or vomit food do not seem to have intestinal indigestion, because Nature protects them in this way. If starchy food intended for children is not cooked sufficiently to allow of rupturing the starch granules, the starch will not be digested; instead, acetic acid will be formed, and will irritate the alimentary tract. The offspring of gouty patients are very liable to manifest a neurotic constitution, and in these the liability to intestinal indigestion is much greater than in others. In a limited number of cases the seat of trouble might be localized. In young subjects, owing to certain histological peculiarities, the flow of mucus, as a result of irritation, is much greater than in adults. This profuse mucous secretion, so rich in mucin, furnishes an admirable soil for the development of micro-organisms, and of toxins. The large quantity of altered mucus also furnishes a convenient place for the lodgment of intestinal entozoa. Children who have suffered previously from chronic intestinal indigestion, and afterward become the victims of some acute infectious disease, have their symptoms markedly aggravated. The invasion of the mucous membrane in children by the micro-organisms of the acute infectious diseases seems to result in a tendency to hypersecretion of mucus for a long time afterward. The childish victims of chronic intestinal indigestion sleep badly, are

very restless at night, have deep sighing respiration, and sometimes fainting spells during the day. Thirst, a craving for acids, and a general irritability of temper, are also commonly observed. The tongue is moist and glossy, and the papillæ at the side are unusually distinct. Sometimes there are febrile attacks, associated with vomiting, and the passage of mucous stools. More commonly there is constipation, and the stools are pasty and of a light color. A dry, hacking cough is sometimes present in advanced cases, and as it is associated with loss of flesh and a slight febrile movement, it may lead one to suspect pulmonary tuberculosis; but the rise of temperature is not so marked or so permanent as in the latter disease. This point in the diagnosis can be safely and positively decided by the use of tuberculin [of which we disapprove.—ED.].

The reader of the paper went on to say that infants up to four months should not be given more than four ounces at a feeding, and should not be fed more than once every two hours during the day. When old enough to have a mixed diet, the starchy foods should be cooked not less than one hour in order to insure their proper digestion. With older children, milk should form the usual beverage instead of tea or coffee. Meat should be allowed at only one meal in the day. The drinking of pure water between meals should be encouraged. Where there is imperfect digestion of the starchy foods, taka-diastase may be added with benefit. Coffee and tea are to be condemned; also fats and sugar, except in the smallest amounts. A warm wet pack, followed by a cold douche (60°) to the spinal column, is admirable for promoting oxidation of tissue, and elimination of waste matter. Rectal irrigation at 110° F. with the aid of Kemp's tube is a most efficient means of relieving attacks of abdominal pain. Drugs should be used chiefly to relieve pain and flatulence, and for this purpose calomel and bismuth are especially useful. The author's custom is to give calomel, one-twentieth to one-tenth grain, in tablets, every two or three hours for from three to five days at a time, and repeat after a week or ten days. This usually produces a most happy effect. Where there is excessive flatulence or urticaria, bismuth in some form should be administered in doses of five grains three times daily. After dentition, Dr. Dessau prefers the use of a tonic laxative, such as a mixture of cinchona and nux vomica, with senna or cascara sagrada. To this he adds spigelia, not be-

cause it is an excellent anthelmintic, but because in small doses it is a most reliable remedy for correcting that condition of the bowel which is favorable for the breeding of intestinal worms. It arrests the immoderate secretion of mucus and diminishes flatulence. The following formula is recommended:

Fluid extract of spigelia, 2 drachms;  
Fluid extract of senna, 2 drachms (or cascara, 1 drachm);  
Tincture of nux vomica, 1 drachm;  
Compound tincture of cinchona, ¼ ounce;  
Compound syrup of sarsaparilla, ad 2 ounces.

Sig.: One drachm three times a day.

When there is anemia present, and the tongue is not much furred, it is well to alternate the use of spigelia with elixir of the manganate of iron, an elegant and palatable ferruginous preparation. These remedies should be continued, in alternating courses of three weeks, for about three months.

#### THE SURGICAL TREATMENT OF CATARRHAL EROSION OF THE CERVIX IN THE NULLIPAROUS WOMAN.

MUNDÉ tells us in the *American Journal of Obstetrics* for May, 1898, that the speedy and certain cure of chronic endometritis in the nulliparous woman by the sharp curette, whether followed by cauterization of the endometrium with a solution of chloride of zinc or with iodized phenol or not, is generally admitted. And especially rapid and sure is the recovery when the endometritis occurs as the result of a parturient laceration of the cervix, and the curetting is at once followed by the repair of the cervical lesion.

But there are a certain number of cases of endometritis in the nulliparous woman, and even in the virgin, in which mere curetting and cauterization do not suffice to effect a cure. These are the cases in which the catarrhal inflammation of the endometrium has produced a hypertrophy of the glands and papillæ of the mucous lining of the cervical cavity sufficiently powerful to force apart the lips of the virgin os and even to evert the lips to a degree scarcely, if at all, distinguishable from the eversion produced by an actual parturient laceration of the cervix.

This condition must not be mistaken for a congenital fissure of the cervix, which was first described by Fischl, of Prague, in 1883, and later by Penrose in 1896, or with the congenital erosion of the cervix reported by Lepold and Ahlfeld in 1872. Such a congenital fissure of the cervix with erosion the writer saw in his clinic at the College of

Physicians and Surgeons of New York in the winter of 1881-1882, and mentioned the case in his work on "Minor Surgical Gynecology."

In cases where the lips of the external os are not forced apart by the exuberant glands of the cervical mucosa, the glands and papillæ of the vaginal covering of the cervix become disorganized by the chronic congestion, and the epithelium covering the membrane adjoining the os becomes abraded, so that in well marked cases a large part of the sphere of the cervix presents a bright red, raw, ulcerated appearance. This is the condition described in the older books as "granular and cystic degeneration of the cervix," and is not a disease by itself, but simply the result of an old chronic endometritis.

In the author's experience this condition is exceedingly common. He finds in his office case-book as many as seventeen cases in nulliparous married women during the past year and two in virgins. Of course virgins are much less likely to present themselves for examination than married women; but from his observation in past years he is confident that this condition is not at all uncommon even in young virgins. Indeed, he has seen several cases in virgins where the erosion and eversion of the lips of the os was quite bad.

The author does not treat in this article of endometritis and erosions, or hypertrophy of the cervix accompanied by laceration of the cervix, as these conditions occur in the woman who has borne children. He refers exclusively to a similar lesion in the, obstetrically speaking, virgin uterus.

Mere curetting and cauterization will not suffice to cure a pathological condition such as exists in this complaint. One can scrape away the diseased glands and papillæ with the sharp curette, but there will be left a raw surface surrounding the external os which will heal but slowly under the use of caustics, and in its place a cicatrix will remain, with probable contraction of the os. The author has seen this frequently in cases treated by other physicians, especially in former years when the sticks of nitrate of silver were so commonly used to cure erosions of the cervix. The resulting sterility was the cause of his being consulted. It may take weeks and months for such an erosion to heal firmly, and a recurrence of the erosion is not impossible.

Years ago it occurred to Mundé that the excision of the diseased tissue surrounding the external os, the limit of which is shown

by the extent of the erosion on the cervix, and the union of the raw surfaces by suturing, might offer an easy, rapid and certain method of cure. Thus, in a paper on "The Indications for Hystero-trachelorrhaphy, or the Operation for Laceration of the Cervix Uteri," published in the *American Journal of Obstetrics* for January, 1879, there will be found on page 127 the following paragraph: "We are all familiar with the difficulty experienced in curing large granular and follicular erosions of the cervix by caustics. Why not, then, hasten the cure by removing the diseased mucous membrane and uniting the healthy edges by sutures, as is done in Emmet's operation? I am confident much time could thus be saved."

The writer has never specially referred to this suggestion again in print, although he has often practised the method, particularly during the last ten years. But the cases have come under his observation so frequently of late that he has decided to follow the suggestion of Dr. W. H. Lockett, to write up the matter.

The operation is exceedingly simple, and consists merely, after curetting the whole endometrium (the sharp curette in the cervical cavity), in excising with slightly curved sharp scissors or sharp, slender knife the entire diseased tissue to the depth of half an inch in converging directions. The cervical cavity then has the shape of a funnel. The raw surfaces are then united by deep sutures, either silver wire, which he prefers, as it can be allowed to remain as long as desired and assures greater certainty of permanent union, or catgut, which will answer very well in minor cases.

Usually two or three sutures on either side will suffice. As the whole tissue surrounding the external os is excised, it is necessary to prevent the complete closure of the cervical canal and os by passing a thin strip of iodoform gauze through it into the uterine cavity. This is changed every forty-eight hours for a week or ten days, when the patient may be allowed to leave her bed and can be discharged, returning after the next menstrual period to have the sutures removed, if they are wire, or to enable the surgeon to see whether the external os is normal in size and not contracting. It is well to advise such patients to call several times, at intervals of one or two weeks, for the passage of a large (Peaslee's) sound, in order to prevent the contraction which so readily follows plastic operations on the cervix

uteri, especially those performed for congenital stenosis of the os and uterine canal. Even with this after-treatment the operation under anesthesia here described, being safe, short, painless in its after-effects, and, above all, effecting a rapid and sure cure, seems by far preferable to the tedious, uncertain, and quite as expensive routine treatment with curette and caustics.

Of course no cauterization of the endometrium by iodine or any other agent is employed when this plastic operation is performed.

To illustrate the effect of this operation on sterility, the writer mentions that a lady, married a year and sterile, upon whom he operated in this manner last September, wrote him from her home in Texas a month ago that she became pregnant soon after her return home and expected to come to New York to be confined at the usual time.

In the virgin this treatment need not necessarily involve the destruction of the hymen, which has usually been rendered pliant and elastic by the long-persisting catarrhal discharge and permits the introduction of a small Sims speculum, through which the denudation and suturing can be performed without injury to the hymen. But even if that organ were torn the damage would be of small consequence in comparison with the cure of the disease.

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#### TREATMENT OF EARLY ABORTION BY THE GENERAL PRACTITIONER.

This practical topic is discussed by R. R. SMITH in the *American Journal of Obstetrics* for May, 1898. He emphasizes two points: first, the importance of early intervention, and second, the fact that the operation can be done by the physician under any circumstances. His experience embraces about one hundred cases, treated in all sorts of surroundings, often in houses that were dark and filthy, and usually without an assistant. By far the greater part of these were treated by the curette, and especially is this true of the latter half. We should curette and empty the uterus in all cases of early abortion, except those which are progressing rapidly of themselves, in which there is slight hemorrhage and no sepsis, and the fetus and decidua come away *en masse*. These conditions, according to the writer's experience, are the exception and not the rule, for either there is more or less severe hemorrhage, a rise of temperature, and the case is protracted, or

the contents of the uterus comes away in fragments. When this takes place it is rare for the uterus to empty itself completely for days or weeks, and the patient is constantly submitted to the danger of sepsis or hemorrhage.

The use of tampons should be restricted to those cases where dilatation is slow, unattended by other complications. Such cases require careful watching, frequent change of tampons, and operation if the procedure is not attended by more rapid progress of the case. Tampons should never be used for hemorrhage, curetting being far more satisfactory. He has given up the use of ergot, it tending to retard rather than hasten dilatation.

As to methods of operation, if one can procure a good assistant it will greatly facilitate matters, but this should never deter one from proceeding should none be procurable. The operation can be done without an anesthetic and without causing pain, the greatest gentleness being imperative. One requires a sharp curette, a uterine sound, a fountain syringe, a dilator, a uterine irrigator or soft or semi-elastic catheter. A small pair of placental forceps may be useful in removing large pieces. The patient should be placed across the bed, the feet resting on the edge or, as is often more convenient, on the knees of the operator. A towel wrung dry from a bichloride solution should be placed under the patient. After washing the buttocks, the vulva and the vagina with soap and water and bichloride 1:2000, the hands and instruments being duly prepared, one reaches the cervix and, if possible, removes with the finger (but never with the finger-nail) any large pieces lodging within reach; the other hand on the abdomen will assist this maneuver. With the fingers one may dilate the cervix if necessary, or if that is impossible one may use a Wylie dilator; then with the curette one should proceed to empty the uterus, proceeding by touch alone and using the greatest care not to injure the uterine walls. The finger of the left hand rests during this process on the cervix and guides the curette.

The whole operation, if done with proper care and thoroughness, may take more than half an hour. After one has gone over the walls carefully the uterus should be irrigated. This can usually be most conveniently done with a soft or semi-elastic catheter. It is usually impossible to procure at such a time sterilized water of sufficient coolness, and it has always been the writer's custom to wash



out with mild bichloride solution, 1:4000. He has never had the least trouble from this, but has always been careful to see that none of the solution was retained in the uterus and vagina. He states that he has never dared to depend on the milder antiseptics. The patient is then put to bed and a sterilized pad applied.

The after-treatment consists of bed-rest and antiseptic douches. There may be a few small clots passed within the first twenty-four hours, but, if the work has been well done, nothing further. Hemorrhage means invariably that all has not been removed; the same may be said of sepsis, except in those cases where the trouble has already gone beyond the uterus. Such cases, however, are or should be rare and do not come within the range of this paper.

#### DEATHS UNDER ETHER DURING 1897.

During the year 1897 at least fifteen cases of death whilst under the influence of ether were reported in the public press. As this number is greatly in excess of the previous yearly average mortality, we were led to investigate the individual cases. By the courtesy of the several medical attendants we obtained full details of certain cases, and had hoped to be able by sifting the particulars to arrive at some explanation of such a sudden increase in mortality. The several factors of each case, however, proved so various that no trustworthy conclusion could be arrived at. We therefore give the following brief summary of the facts in the hope that they may be useful. The details of ten of the following cases were furnished direct to us; of the remaining five we have no further information than that given at the several coroners' inquests:

Case 1 was of intestinal obstruction, the result of malignant disease. The patient, a man aged fifty-three, was rather collapsed before the administration of the anesthetic, which was given by a Clover's inhaler. He took the anesthetic well, but vomited while manipulation of the intestines was in progress. There was no preliminary retching, and a large amount of vomit entering the trachea, the patient was suffocated. This case emphasizes the necessity of emptying the stomach before operating on collapsed and debilitated subjects.

Case 2 was that of a woman aged thirty-nine, suffering from ruptured tubal gestation, and in a moribund condition.

The details of Cases 3 and 4 will be found respectively in the *Sussex Daily News* of June 7, 1897, and the *South London Mail* of April 16, 1897.

Case 5 died under chloroform, and Case 6 will be found in full in the *British Medical Journal* of January 8, 1898.

Case 7 was that of a female aged twelve. The operation was for the removal of a large suppurating multilocular cyst of the broad ligament weighing about eight pounds. Previous to the operation the patient was in fairly good condition, but had had a more or less elevated temperature for three weeks. The operation lasted thirty minutes, and about five ounces of ether, which was preceded by gas, were used. During the administration the pulse became more and more weak, the pupils kept contracted, and the breathing became somewhat shallow. The patient having been put into bed and hot bottles, etc., applied, the pulse greatly improved, but the pupils remained contracted, dilating only at the moment of death.

Case 8 was reported in the *Echo* of October 8, 1897.

Case 9, a woman aged thirty-nine, was submitted to an operation for the removal of a retained placenta after abortion. The condition previous to operation was very bad, temperature 104° and pulse 120. Ether alone was administered by a Rumboll-Birch gas and ether inhaler, and an anesthesia had been attained and preliminary irrigation performed, when the pulse ceased to be felt and respiration stopped. From two to four drachms of ether were used.

Case 10 was one of abdominal section; six ounces of ether were given through a Clover's inhaler.

Case 11 is reported in the *Western Daily Press* of September 15, 1897.

Case 12 was an operation for relief of strangulated femoral hernia in a man aged thirty-seven. Previous to the operation there was profuse stercoraceous vomiting. Six drachms of ether were administered from a Clover's inhaler. The patient took the anesthetic well at first except for some struggling, but while passing into the stage of complete anesthesia, some vomit was observed to come up into the mouth without straining, and respiration ceased entirely from that moment.

The operation on Case 13, a woman aged sixty, was for removal of the appendages, together with supravaginal hysterectomy. About six ounces of ether were given, pre-

ceded by gas. Previous to administration the patient was in an apparently good condition and the heart's action was good. At first there was a good deal of cyanosis, but after this the patient took the anesthetic well till about half an hour before the close of the operation, when the pulse became feeble and the respiration shallow. At the post-mortem advanced fatty degeneration of the heart was found.

Case 14 was reported in the *Sussex Daily News* of December 14, 1897.

Case 15 was an attempted hysterectomy as a last resource in a case of protracted hemorrhage in a woman of forty-four.—*British Medical Journal*, May 21, 1898.

#### HYDROGEN PEROXIDE AND SPONTANEOUS COMBUSTION.

LAWALL tells us in the *American Journal of Pharmacy* for June, 1898, that the danger of explosion of hydrogen peroxide, when kept in tightly stoppered bottles, has long been recognized as a serious drawback to the purchase of any considerable quantity at one time. The deterioration or decomposition which, in the most favorable instances, takes place to some extent after several weeks' standing in the bottled condition is accompanied by liberation of oxygen, which (if the bottle be tightly stoppered) accumulates until the pressure is great enough to force out the stopper or burst the bottle, the latter circumstance occasionally being attended by considerable damage to objects in the immediate vicinity.

Although a working process was included for the preparation of hydrogen peroxide in the 1890 Pharmacopœia, at the time of its admission, few pharmacists attempt to make it themselves, and its manufacture is confined to a limited number of firms who make it on a very large scale. As transportation is very detrimental to it, and considering the large amount of it that is handled yearly, the small number of explosions reported is to be wondered at. Probably this may be largely accounted for by the fact that it is usually the custom of the manufacturer to replace bottles broken spontaneously, and it has necessarily made him very cautious regarding the condition of the bottles and the acidity and volume of strength of the preparation when it leaves his hands.

Quite recently, however, the writer's attention was attracted to a new property of this article, which property, it is believed, has

never been recorded. It was the phenomenon of spontaneous combustion, caused by hydrogen peroxide under certain conditions. The property was investigated further, and experiments verified the conclusion that, under certain favorable conditions, hydrogen peroxide is capable of causing spontaneous combustion. The circumstances attending it were as follows:

The writer and his assistant went botanizing in New Jersey. Neither *Rhus toxicodendron* nor *Rhus venenata* were yet in leaf nor flower, although many of the plants were observed and avoided on general principles. The next day the assistant discovered that his right wrist was affected by rhus poisoning, and a course of treatment was begun, using peroxide of hydrogen, which seemed to act very favorably upon the eruption. A cheese-cloth bandage was wrapped about the wrist and kept saturated with peroxide by pouring on a small quantity occasionally. The treatment was discontinued in the evening and the bandage removed before retiring. On the second day of the treatment a rush of work interfered with the previous practise of keeping the bandage constantly moistened, and after several applications during the earlier part of the morning, the matter was entirely forgotten. Several hours later an odor of burning clothes and severe pain in the wrist directed the patient's attention to the fact that the bandage was smoldering and was already charred black in many places. Before it could be removed it had caused several burns on the wrist, which required weeks to heal and which will show scars for several years.

The experiment was afterward repeated by saturating the same material (cheese-cloth) with peroxide of hydrogen and exposing it to the heat of a drying oven, meanwhile observing the temperature and action of the peroxide. Charring took place in all cases, but in no case was it produced at blood heat, the lowest temperature at which the action was observed being 65° C.

The conditions produced by wrapping a bandage in the manner described may lower the temperature of combustion somewhat, but as no one cared to submit to experiment in that direction, the occurrence is given as it was noted, without verification.

The probable cause of the phenomenon is the presence of a slight amount of free sulphuric acid, which is allowed by the U. S. P. for the purpose of preserving the solution. When the experiment was tried with the

hydrogen peroxide which had previously been neutralized, little or no charring effect was produced on the material used, while a one-per-cent. solution of sulphuric acid produced charring to a greater extent than the peroxide in the first instance.

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WHAT IS THE BEST OPERATION FOR  
"ADENOIDS?"

The diligent reader of rhinological literature can hardly have failed to notice that for the removal of the masses of lymphoid tissue in the naso-pharynx, commonly termed "adenoids," very different operative procedures are advocated. Galvano-cautery, the cold snare, curettement, forceps, each has its supporters. Some operators seldom use an anesthetic, others invariably do. The position of the patient is as various as the operative features, some surgeons preferring the sitting posture, others what might be termed the recumbent semi-prone, and others again to have the vertex dependent, etc.

The use of Gottstein's curette as the main dependence appears to prevail as against the use of cutting forceps, though many operators combine their use. Dependence upon the curette alone appears to be irrational, and in fact has been deceptive in its results by reason of the structure of the lymphoid growths. The lymphoid portions of these are held together and attached to the vault by fibrous and vascular tissue, forming sessile pedicles and septa, a sort of placenta, varying very much in its extent and firmness. Now, when this fibrous tissue prevails and the growth is therefore termed "tough" and fibrous, it is not reasonable to expect that an instrument like Gottstein's forceps, which scrapes rather than cuts the growth, will thoroughly remove it. A small, strong, sharp forefinger-nail, such as is possessed by some surgeons, is eminently superior to Gottstein's instrument, especially in curetting out the narrow recesses on the wall of the space anterior to the Eustachian prominences and at the entrance of the choanæ, yet it is well known that the portions of fibrous pedicle and lymphoid tissue left after its use often lead to a return of the growth. These cannot be thoroughly removed by even a very strong finger-nail, much less by a curette scraping over the surface. Some form of cutting forceps is necessary. Such forceps undoubtedly require more care and skill for their use than the curette, but then, skill, care and deliberation are far more necessary for the proper per-

formance of the operation than is generally supposed.

With many operators "ignorance is bliss;" for, after a hasty operation with the curette, during which the phenomenal hemorrhage encourages them to believe that they have been heroically thorough, they fail to explore the cavity a week or two later, and to discover that close to the choanæ a considerable mass yet blocks the way, and nasal breathing is still obstructed.

Haste in operating is mainly due to the very free hemorrhage and its menace to respiration. Hence, it appears wise to place the patient semi-prone with the head sufficiently dependent, and to proceed quickly, but without haste. This, of course, necessitates complete anesthesia, and sufficiently profound to insure the quietness of the patient, say from five to eight minutes, during which time the finger-nail and curette can be rapidly used, to be followed by the proper cutting forceps guided along the left forefinger, which (surgeon on the right of the patient) hooks forward the soft palate and constantly touches the sharp edge of the vomer.

The only fairly practicable way of telling whether all the vegetations have been removed is by palpation, and this must be carefully done, or otherwise portions will escape detection.

The above observations are in accord with many competent operators, and are believed to be in accordance with those general surgical principles which insure safety and success; whereas the methods pursued by many operators are neither safe nor successful. There appears at present to be too much stress laid upon rapidity of operating and brief anesthesia, and too little upon the difficulties and dangers attendant upon the complete removal of some of these growths.

No matter how complete the operation appears to have been, a careful examination of the naso-pharynx should invariably be made a week or two afterwards.—*The Laryngoscope*, June, 1898.

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EXTIRPATION OF THE RECTUM; OR,  
WHAT RECTUMS SHOULD BE  
EXTIRPATED?

MATTHEWS, of Louisville, in the *Physician and Surgeon* for June, 1898, writes a paper on this topic. He says to answer the question, When shall we operate? it might be said:

1. When a dangerous degree of hemorrhage exists.

2. To prevent total occlusion of the bowel.
3. To alleviate great and distressing pain.
4. To prevent further extension of the disease and effect a cure.

To the first proposition—when a dangerous degree of hemorrhage exists—the writer would affirm that he has never had occasion to operate on this account; not that he has not seen cases that bled profusely, but in such cases the bleeding could be and was controlled without the radical operation. In many instances great hemorrhage, or indeed a small hemorrhage, seldom occurs. If, then, such a dangerous symptom does exist, and cannot be stopped, a radical operation is justifiable.

Second, to prevent total occlusion. If, upon examination, it is discovered that but a small opening exists, and in consequence a distressing line of symptoms present, it is not necessarily a case for extirpation, but rather to relieve the strictured condition. There are procedures much simpler, and certainly much less dangerous, that will accomplish the desired result.

Third, to prevent great and distressing pain. It would depend entirely upon what caused said pain, and if an operation would relieve it. Pain in malignant growths is often *inherent*, caused by the involvement of nerves in pathological tissue, and if this condition exists to a marked degree it will call for the extirpation of the growth rather than a colostomy. If, as many suppose, pain is caused by the friction excited by the passage of the feces, then a colostomy is preferable to extirpation, all things being equal. But the author believes that the distinguished surgeons will attest that in many cases of cancer of the rectum, especially when the growth does not involve the sphincter muscles, pain is not a factor in the case. Under such a condition one would not be justified in extirpating the rectum.

Fourth, to prevent further extension of the disease, and to effect a cure. This last reason appeals more to the surgeon, the writer admits, than all others combined. If such result can be obtained, a surgeon would be very remiss in his duty if he did not resort to the most radical method even to accomplish so good an end. But can this result be obtained, and when? Several methods have been proposed by which the entire rectum can be removed. So that it is no longer a question when we shall operate in order to effect a cure. In the early stage and when all the involved tissue can be removed? Yes;

by all means. But shall we operate after this stage has passed? Just as emphatically the author would answer no. The gynecologist is beginning to stop and count over his recoveries after hysterectomy for cancer. Just what the tables are has not yet been tabulated or reported. How many recoveries from extirpation of the entire rectum for cancer is not definitely settled. We know that a certain percentage die as the result of the operation. Some live one, two, three, or perhaps six years after the operation. But would they not have lived just as long without it? Many do; yet may it not be they lived in greater ease? But did they? Some do not. If for relief of pain only, morphine would have accomplished as much. There can be no doubt that when constitutional symptoms are manifest, when by the infiltrative process neighboring organs and tissues are invaded, extirpation is unjustifiable. The operation, especially by the Kraske method, is both a dangerous and a difficult one. With so little to promise, and so much to go through, is it not better to comfort than endanger the life of your patient?

The treatment of cancer of the rectum by extirpation is not a new one. Lisfrance was the first to recommend it. Others followed, but it soon was abandoned. Since Kraske gave us his plan it has been greatly revived. Would it not have been just as well not to have given it such an impetus?

*How Shall We Operate?*—For the treatment of cancer of the rectum a number of plans have been advocated:

1. Caustics, including the thermocautery.
2. Colostomy.
3. Curettement.
4. Removal by the Kraske operation.
5. Removal by the circular method.
6. Palliation, and by division of the coincident stricture.

The first is not much practised and is of but feeble utility.

The merits of the second (colostomy) have been argued *pro* and *con* by many authors. The writer prefers to be classed as an anticolostomist in the majority of cases of cancer of the rectum.

The third method (curettement) is advocated by Tuttle in an able article. The writer fails to see any advantage it may have over extirpation, and it certainly accomplishes less.

The fourth (the removal by the Kraske plan) is received with much more favor in this country than in Europe. It cannot be gainsaid that it is a difficult piece of surgery

and attended with danger. But the principal reason that the writer opposes it is that by a simple method the whole rectum can be extirpated if deemed advisable.

Fifth (the circular method). Any one after doing extirpation of the rectum by both methods must have been struck by the simplicity of this. If any trouble is encountered by removing the coccyx all the room is obtained that is needed. The sacrum in the writer's opinion should be held sacred. H. O. Walker has improved on the Kraske method by suggesting and practising the use of a large Murphy button to attach the upper and lower edges of the severed intestine.

Sixth (palliation). This can be practised by many soothing local applications and by division of the strictured portions. The author would add also that all pain can be made bearable by the use of opium. The writer has been practising a certain plan for the treatment of strictures of the lower gut, which differs materially from that of others. In the last issue of the *New Orleans Medical and Surgical Journal* Professor Ernest La Place, of Philadelphia, discussed his manner of dealing with strictures of the rectum, namely: "The use of the graduated rectal bougies is the most harmful way of tearing the fibers apart, and of removing the stricture. This is done under ether and can be accomplished in a few minutes. In two or three weeks after the dilatation we find that the gut has retained the new caliber by the operation, or should it have a tendency to contract again, the patient is shown how to use a moderate-sized bougie so as to keep the gut patulous." The writer much prefers to forcibly dilate to full extension by a formidable dilator, and not to use any subsequent dilatation at all. His manner is to forcibly break the stricture, to the fullest extent, then plug to prevent hemorrhage. The frequent use of the bougies accomplishes but little, and the friction extended by the same causes additional deposit, especially in syphilitic or benign strictures.

Matthews concludes: (1) That the Kraske operation for the removal of the rectum is not to be advised; (2) that what is known as the high operation for the removal of cancer of the rectum is seldom justifiable; (3) that the opening of the peritoneal cavity in operating for cancer of the rectum is to be deprecated and should not be regarded as a "light affair;" (4) that the circular is to be preferred over the sacral method in the extirpation of cancer of the rectum; (5) that all

malignant growths within reach of the finger, and that can be circumscribed, should be extirpated; (6) that where a stricture exists threatening total obstruction, and it is not considered advisable to extirpate the growth, either colostomy should be done or the stricture should be forcibly dilated; (7) that forcible and free dilatation of a stricture often accomplishes as much as a colostomy, and is much to be preferred; (8) that it is questionable whether the entire rectum should ever be extirpated for cancer.

#### ACUTE GASTRO-ENTERITIS OF CHILDREN.

NICHOLS, of Savannah, Ga., thinks that the treatment of this affection in children consists in the use of a purgative, if the case is seen early—preferably gray powder, rhubarb, or fifty-per-cent. emulsion of castor oil, one drachm every two hours, until eight doses are taken. The purgative is the *sine qua non*. Fast the child for fifteen hours, and then give egg-water brandied, panopeptone with cracked ice, every hour or two. Twice a day the author usually irrigates the colon—that is, night and morning; he uses a large catheter or small rectal tube, using the ball-nozzle syringe (fountain) on account of its bulk of tube and free stream. All are acquainted with the irrigation technique, but gentleness and proper temperature of the water are necessary. Sometimes a gallon is required to insure proper washing. Detach the catheter gently, inch by inch, and withdraw it so as to evacuate all fluid remaining in the pouches. The author uses common salt, one drachm to a quart. The water should not be over 110°, that is extreme; 90° is better for ordinary cases. His experience in cold rectal irrigation is bad, griping and abdominal unrest resulting.

The author has had no experience in stomach-washing; his patients resist all suggestions on that line. After the first day increasing doses of arrowroot with burnt spiced brandy, and the irrigations, coupled with hyoscyamus extract and aconite tincture every two hours, complete the cure in mild cases. Drugs, in the author's hands, have not accomplished the wonders spoken of in books on therapeutics. The bath reduces temperature, and by the mild shock the vasomotor paralysis is removed and the capillary vessels react and dilate. Bathing the face and head with water at 60° promotes still further reaction, and the eye brightens.

In a grave case our common sense and tact is more than taxed.

Feeding with barley water, white of egg and brandy, and a little salt, usually tides us over to the convalescent stage.

This acute gastro-enteritis must sometimes be confounded with acute milk infection, which presents similar symptoms, only in a more rapid and alarming degree; vomiting and purging may lead to fatal termination in twenty-four to thirty-six hours in serious cases. In the treatment the physician should not give a drop of milk, but use the treatment outlined above; wash out the intestine at once, and dissolve tannic acid in the water, one scruple to a quart, as it neutralizes the poison. Sustaining, energetic treatment should be given, with baths, meat broths quite warm, one drachm at a time. On the acidity or alkalinity of the stools Nichols bases his nutrition. Thus, acid, greenish stools call for the proteid elements, animal broth, egg-water, etc.; both must be freshly prepared and given in small quantities. Large, frothy, alkaline stools call for the carbohydrates, flour (three pounds), boiled eight hours, cooled, and after shaving off the gummy outer coating, grating the hard, chalk-like mass to a powder, of which with spiced brandy and hot water a fine pap can be made; arrowroot also answers excellently.

Nichols concludes by telling us to use mother's milk if practicable. If this is impossible then we are to use the best artificial foods without milk. Condensed milk after six months is a "snare and a delusion," and gives no resisting power in disease, for on it children do not grow so strong, muscular, or as rapidly as they should.

#### SCALDS AND BURNS.

The object of this article being to review the newer contributions to our list of remedies, the well known measures employed for minor burns, and which all surgeons well know, will not be described. Suffice it to say that the application of bicarbonate of sodium mixed with enough water to make a thick paste, lead-water and laudanum, equal parts of white of egg and sweet oil and white lead paint—which causes the pain to cease almost instantly—have best stood the test of time. It must be said, however, that many newer agents are more effective, both for minor and major injuries; these it is our purpose to review.

*Picric Acid.*—In superficial burns this

agent has been found useful by so many observers who have employed it in a large number of cases that the adverse reports recorded are not sufficient to warrant its rejection as one of our most active agents. It not only procures rapid resolution, but its analgesic action is marked in the majority of cases when employed properly. In deep burns, however, it may give rise to toxic symptoms, and it should not be employed, in the case of children especially, Walter Latouche, Berger and Tuffier having reported marked cases of poisoning in the latter.

Picric acid is a product of the action of nitric upon carbolic acid. It occurs in the form of fine yellow scales, which are soluble in water and alcohol. It is extensively used as a dye, giving a brilliant yellow color to objects over which it is applied. Owing to this property it stains the hands of the operator unless these be previously smeared with vaselin. Stains may also be removed from the skin by means of alcohol or soap and boric acid. D'Arcy Power, who employed it extensively, used a solution made by dissolving one and a half drachms of picric acid in three ounces of alcohol, which is then diluted with two pints of distilled water, a saturated solution being thus procured. The clothing over the injured part should be gently removed, and the burnt or scalded portion should be cleaned as thoroughly as possible with a piece of absorbent cotton-wool soaked in the lotion. Blisters should be pricked and the serum should be allowed to escape, care being taken not to destroy the epithelial surfaces. Strips of sterilized gauze are then soaked in the solution of picric acid, and are so applied as to cover the whole of the injured surface. A thin layer of absorbent cotton-wool is put over the gauze, and the dressing is kept in place by a light linen bandage. The moist dressing soon dries and it may be left in place, for three or four days. It must then be changed, the gauze being thoroughly moistened with the picric acid solution, for it adheres very closely to the skin. The second dressing is applied in exactly the same manner as the first, and it may be left on for a week.

The great advantages of this method of treatment are: first, that the picric acid seems to deaden the sense of pain; and secondly, that it limits the tendency to suppuration, for it coagulates the albuminous exudations, and healing takes place under a scab consisting of epithelial cells hardened by picric acid. A smooth and

supple cicatrix remains, which is as much superior to the ordinary scar from a burn as our present surgical scar is superior to that obtained by our predecessors, who allowed their wounds to granulate.

According to Miles the advantages of picric acid are: Simplicity, painlessness, asepsis, small amount of discharge, infrequent dressings, astringent action in preventing inflammation, property of promoting the growth of epithelium, rapid separations of sloughs, absence of poisoning symptoms, and economy in dressings. Its use should cease, in his opinion, when inflammation has subsided and granulations have formed.

Thompson, of St. Louis, who used it in fifty cases, states that it is advisable to let the shreds of clothing which have been burned into the skin remain until the second dressing. The cloth having been aseptized by burning, it will do no harm by remaining, while its removal can only be accomplished by stripping away the flesh. The cloth will act as a capillary drain into the skin, and it will promote a permeation of the acid solution into the injured tissue. At a second dressing the thoroughly soaked fibers can be more easily removed. Dressings soaked in a picric acid solution do not adhere as much as other applications.

Picric acid has also been employed advantageously by Thierry, Filleul, Papazoglou, Sila Novitsky, Souter, and others. The author last named simply paints the saturated solution over the burnt surface with a large camel's-hair pencil and leaves the primary dressing, covered with oiled silk and cotton-wool, on for a period of from three days to a week. He says that the solution is used with much success in iron foundries and sugar refineries, a large bowl of it being kept in readiness for emergencies. This procedure could be imitated with advantage on board of war vessels, especially during action.

*Aristol* presents the advantage of being useful in burns of the second and third degrees. It occurs in crystals of light reddish-brown color, is soluble in water, slightly soluble in alcohol, and freely soluble in ether and fats.

In burns of the second and third degrees it has been found strikingly effective where other remedies have failed. Haas states that the pain is most instantly relieved and that healing is rapid. R. Y. McCoy, to illustrate its value in ulcerative processes occurring as a result of burns, cited the case of an engineer

in whom a scald had caused excessive supuration of legs, knees, and soles. An ointment of aristol changed the appearance in twenty-four hours, and the healing process continued steadily and with unusual rapidity.

It may be used in the form of powder or mixed with oil or vaselin. The surface should be disinfected with a boric acid solution, and after opening the vesicles aristol is applied and the whole is covered with sterilized cotton-wool, gutta-percha paper, and a bandage. The application of aristol powder directly to the wound at the beginning hinders the dressing from soaking up the secretion; when the latter is diminished, however, aristol may be applied either alone or in a ten-per-cent. ointment with olive oil, vaselin, and lanolin.

Walton, of Ghent, has used the following ointment in the treatment of burns:

- B. Aristol, 1 part;  
Sterilized olive oil, 2 parts;  
Vaselin, 8 parts.  
M.

Around the edges of the burns, after the ointment is spread, he dusts the aristol in powder form. In burns of small extent he employs the powder form only. Cleanliness must be thorough whenever the dressing is changed. One of the great advantages of aristol is its freedom from poisonous effects. There is some smarting at first, but it soon passes off.

Cookman states that aristol may be used in all varieties of burns, from a simple erythema of the skin to a complete charring and destruction of the tissues. In the superficial form it is best used as a powder, while in the deeper burns the following ointment is to be preferred: Aristol, 1 part; olive oil, 2 parts; dissolve and add vaselin, 8 parts. He considers the strict asepsis of the wound, however, as the first essential to success. After pricking all the blebs and permitting the serum to exude, the burn should be well irrigated with a weak solution of boric or carbolic acid, and its surroundings scrubbed with soap and water. Then with sterilized absorbent cotton the surface should be gently dried, and the aristol applied, either as a powder or an ointment. If the latter is used the wounded edges are first dusted with the powder, and then sterilized gauze on which the ointment has been thickly spread is applied. The dressing is completed with another layer of gauze, absorbent cotton, and a bandage. After three days this should be removed, the wound and adjacent parts aseptized as

before, and the same dressing reapplied. By careful treatment in this manner very extensive burns will rapidly cicatrize.

*Ichthylol* is also efficacious in treatment of burns of the first and second degrees. Leistikow found that it allayed the pain at once. Slight superficial burns heal rapidly. In burns of the second degree with the formation of bullæ, even when extensive areas are involved, the remedy also acts favorably. It is used dry, diluted with zinc oxide or bismuth, the powder being spread evenly over the surface; in ointment (ten to thirty per cent.); or as a combination of these two methods. The powder is the most satisfactory form in extensive burns of the first degree, and should be plentifully applied. In extensive burns of the second degree the soft paste is preferable.

The zinc oxide powder may be combined as follows:

- R Ichthylol, 1 to 2 parts;  
Zinc oxide, 20 parts;  
Carbonate of magnesia, 10 parts.  
M.

While the paste is mixed as follows:

- R Carbonate of lime, 10 parts;  
Zinc oxide, 5 parts;  
Oil, 10 parts;  
Lime-water, 10 parts;  
Ichthylol, 1 to 3 parts.  
M.

*Europhen* contains about twenty-eight per cent. of iodine, which it yields on exposure to moisture. It is similar in action to iodoform, but has the advantage of having a less disagreeable odor. Again, it is less poisonous, does not become aggregated in masses, or "cake," and is much lighter. It is, therefore, a valuable agent in burns. It may be employed in the form of powder; but a dressing consisting of three parts of europhen and seven parts of olive oil is to be preferred. Nolda, who has used it considerably, employs the following:

- R Europhen, 1 part;  
Vaselin,  
Lanolin, of each 10 parts.  
M.

This he applies two or three times a day to burns limited to rubefaction or vesication. As it only becomes active in the presence of moisture, its beneficial effect in the presence of secreting surfaces is obvious.

*Thiol* has been found useful for all degrees of burns. According to Bidder, it allays pain very rapidly and arrests cutaneous hyperemia. In this manner it tends to prevent ulceration and scars. Giraudon has found it

especially valuable in burns of the second degree, and he also observed that suppuration and cicatrices were avoided even after burns of the third and fourth degrees.

The parts are first washed with a weak antiseptic solution, and the cuticle that may be hanging loose from ruptured blisters is removed, taking care to leave intact those that have not been opened. After dusting the burn with boric acid, the entire surface of the burned region and the skin around it are painted with a solution of equal parts of thiol and pure water. A layer of greased cotton is then laid on the burn, and kept in place with a loose bandage.

*Chloral Hydrate*.—The antiseptic and sedative properties of chloral hydrate make the application of a 5- to 30-grain-to-the-ounce solution quite useful in superficial burns.

*Nitrate of Potassium*.—Nitrate of potassium has been found to be useful in all kinds of burns by Poggi, and may be employed to great advantage when the other agents described cannot be had. It acts mainly as a refrigerant by causing notable lowering of the temperature of the liquid used as a solvent.

If a burned hand or foot is plunged into a basin of water in which a few spoonfuls of the nitrate have been placed, the pain ceases rapidly; if the water becomes slightly heated, the pain returns, but it is allayed as soon as a fresh quantity of the salt is added. This bath, which is prolonged from two to three hours, may bring about the final disappearance of the pain and even prevent the production of blisters. The application of the compresses also exercises the same influence. By this means the pain is allayed and cicatrization takes place without delay.

*Calcined Magnesia*.—M. Vergely obtained favorable results with this salt in burns of the first and second degrees. The affected parts are covered with a thick layer of paste, which is prepared by mixing the calcined magnesia with a certain quantity of water. This paste is allowed to dry on the skin, and when it becomes detached and falls off, it is replaced by a fresh application. Very soon after the paste is applied the pain ceases, and under the protective covering formed by the magnesia the wounds recover without leaving the cutaneous pigmentation which is often observed to follow burns that have been allowed to remain exposed to the air.

*Turpentine*.—H. L. McInnis states that spirit of turpentine applied to a burn of either the first, second or third degree almost



at once relieves the pain, when the burn heals quickly. After wrapping a thin layer of absorbent cotton over the burn the cotton is saturated with common commercial turpentine and covered with bandages. Being volatile, the turpentine evaporates, and it is therefore necessary to keep the cotton moistened with it. When there are large vesicles these are opened on the second or third day. It is best to keep the spirit off the healthy skin, if possible, to avoid the local irritation. Turpentine is also peculiarly useful when the granulations are sluggish. It is a valuable agent for the treatment of burns aboard ship, where turpentine is always on hand.

*White-lead Paint*, referred to early in this article, was extensively used by Prof. S. D. Gross in mild and severe cases, and the results obtained were often remarkable. This excellent remedy is likewise always on hand.

*General Measures.*—Emphasis was laid by Paul Tschmarke, of Magdeburg, upon the great importance of keeping the injured part aseptic; the patient may recover from the shock only to die of blood-poisoning. This is especially to be feared where the side of the face and the chest are extensively burnt. The wound should at once be thoroughly disinfected. He then covers it with subnitrate of bismuth, and then with iodoform gauze, kept in place by light bandages. If the bismuth powder is found to irritate the skin and the raw surface, after it has been applied for a few days, he replaces it by boric ointment. Every change of dressing should be made in a bath, in which the previous substances applied are allowed to soak off.—*The Monthly Cyclopædia of Practical Medicine and Universal Medical Journal*, May, 1898.

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OBSERVATIONS ON WHEN TO APPLY  
HEAT AND COLD IN EYE  
TREATMENT.

POOLE, of Detroit, considers in the *Journal of the American Medical Association* of May 14, 1898, the therapeutic application of these remedial agents, in some of the diseased conditions we see in our daily treatment of the eye. First, he states as a general proposition that cold causes constriction of the capillaries, thereby checking the amount of secretion and exudation, and in this way acts as a sedative, relieving the pain in the beginning of acute inflammatory conditions.

On the other hand, hot applications are more useful in the later stages, bringing

about a more healthful condition of the tissues involved, and relieving pain by stimulating absorption of the exudate and dilating the capillaries, not only in this way modifying the engorgement, but conveying to the part the life-giving principle for its proper nourishment, and the rapidity with which absorption takes place is greatly increased by the previous application of moist heat. This fact is frequently made use of when using mydriatics. In some cases of iritis, where owing to synechiæ the drug seems to make very little impression on the pupil, if we bathe the eye for eight or ten minutes with water as hot as the patient can bear, we will find absorption take place rapidly and we will get the desired action of the drug.

While moist applications are preferable, there are some cases where dry heat is more applicable and satisfactory, such as scleritis and iritis, where there is apt to be little or no secretion except of tears by reflex irritation.

We will find cold applications more suitable in the following conditions, viz.:

In conjunctival hyperemia, which consists almost exclusively in congestion of the vessels, with slight papillary engorgement, a very moderate increase in the secretion and with no swelling of the membrane, whether it is of traumatic origin or caused by eye-strain. The application of the cold douche or bathing with cold water for a few minutes will be very effectual in bringing about a healthy condition of the membrane, care being exercised in not using water too cold, or the reaction may be too severe.

In acute purulent conjunctivitis, which, as its name indicates, is characterized by a distinctly purulent discharge, thus differing from catarrhal conjunctivitis; for as De Wecker says, "let a catarrh be never so intense it will not give rise to true blennorrhœa or purulence." We need vigorous treatment from the beginning, and as an adjunct to other treatment, to assuage the initial swelling and pain, we use ice-cold applications, either by using bits of muslin dipped in iced water, changing them every minute so that the cold may exercise its beneficial influence, or in some cases, if the eye will bear it, small pieces of ice wrapped in muslin may be held on the eye. We need have no dread of untoward results from prolonged use, as the rule, especially in the early stages of this form of disease, is continuous cold to the degree of toleration. These applications are to be continued day and night, ever being watchful of

the cornea to see that it is not becoming involved, in which case the cold applications must cease and be succeeded by hot applications persistently, at least four times an hour for three or four hours, by which time usually the threatened destruction of the cornea will have been stopped, owing to the improved circulation and nutrition.

In ophthalmia neonatorum, cold applied in the same manner will be found just as useful and grateful to the little patient.

Cold applications are also sometimes useful in cases of phlyctenular conjunctivitis when, owing to the distressing photophobia, we cannot get the patient to open the eyelids for the necessary remedies to be used; we drop a few drops of ice-water on the eye, which penetrates between the lids and aids us in gently opening them.

Sometimes in penetrating traumatism of the eye where injury has been done to the iris and the lens, causing plastic iritis and traumatic cataract, ice-cold applications are useful for their germicidal action as well as for overcoming inflammatory reaction.

Poole then goes on to mention a few conditions where hot applications are more suitable than cold.

First, in acute catarrhal conjunctivitis, which while it may present somewhat the same symptoms we found in hyperemia, yet we have here a characteristic stringy, tenacious, flocculent, mucous discharge, with possibly some small masses of pus in it, having a tendency to stick the lashes together. At the very beginning of this condition we frequently find lukewarm applications very comforting and useful, but the error must be avoided of keeping up the treatment too steadily, as is sometimes done by the laity, who frequently make use also of such appliances as potato scrapings, bread and milk poultices, raw oysters, tea leaves, rotten apples, and other disgusting substances, causing edema of the lids and conjunctivæ, intensifying the hyperemia, and finally, in some cases, producing ulceration of the cornea. Such conditions are not rarely met with in the clinics of public institutions.

In edematous conjunctivitis, a condition in which the hyperemia is not marked, where there is little pain and not much discharge, but a considerable effusion of serum beneath the conjunctivæ of both the eye and lids causing a very uncomfortable swelling, bathing with lukewarm water will prove beneficial.

In trachoma, at the beginning of the disease, hot water is not usually well borne. As

soon, however, as vascularity of the cornea arises with threatened ulceration, hot applications are indicated to stay the progress of destruction and assist in its repair. Hot compresses are oftentimes useful in causing the disappearance of the pannus by the inflammatory reaction which they promote.

In the less severe cases of phlyctenular conjunctivitis, lukewarm water will be very comforting and beneficial, helping to overcome the eruptive exudate.

In all forms of keratitis hot applications are to be used, never cold, except possibly in phlyctenular, when ice-cold water may be made use of for the immediate purpose of overcoming the photophobia, as referred to when speaking of phlyctenular conjunctivitis. This is practically the only time we use cold applications in corneal diseases.

The applicability of heat in diseases of the cornea will be well understood if we remember the anatomical structure of this membrane, it being non-vascular and dependent upon the surrounding tissues for nutriment; it follows that inflammatory or diseased conditions necessarily stop the supply of nourishment and death and destruction of the cornea results, as is evidenced by the ulceration. In order, therefore, to hasten the repair of the tissue it is necessary to overcome this stasis, which is accomplished by applying hot water, or sometimes better by dry heat, by folding a napkin and heating it by the fire or with a hot iron.

Phlyctenular keratitis is undoubtedly the form which furnishes the majority of cases of corneal disease, occurring as it does among children who are delicate, ill fed, overfed or scrofulous; and in this class of cases we also see the disastrous results of ignorant interference in treatment by poulticing with the several harmful and repugnant articles mentioned previously, instead of using the simpler and more beneficial hot water compress.

On account of its stimulating properties, the hot compress will be found especially useful in the treatment of ulcers that do not heal readily, hastening the process of repair, while a drop or two of scalding water applied to a fungoid ulcer gives good results.

In suppurative choroiditis we find that hot applications are not appreciated by the patient, but they are very beneficial, especially in mild cases.

Hot applications are often very grateful in muscular asthenopia, allaying the pain, and by stimulating the weaker muscle, removing the troublesome symptoms.

In a general way we may say the rule in all the moderate cases is intermittent use of the local applications of both heat and cold, from ten to thirty minutes at a time, and from three to ten times in the twenty-four hours, the continuous use of the applications being indicated only in the severe forms or in special cases.

#### THE ABUSE OF IODOFORM.

We learn from the *Annals of Surgery* for May, 1898, that Dr. W. G. PORTER recently read a paper in which he sketched the history of the introduction of iodoform into surgical use, and gave extracts from the writings of Mosetig-Moorhof, Moleschott, Miller, Burkhardt, Stillé and Maisch, Le Dentu, Hayes, and others. He called attention to the possibility of toxic effects from its too free use, quoting especially Treves and R. W. Taylor upon that point. As to the manner in which iodoform acts favorably as an application to wounds and granulating surfaces, he gave the views expressed in Hare's work on therapeutics. After this review of the subject he earnestly protested against its routine use to the exclusion of other dressings equally as good and free from its many objections. He said that the general practitioner seemed to think that the only treatment for every furuncle, carbuncle, swelling, ulcer, incision, or wound, was to cover it with iodoform until their patients went around like a walking pestilence, the objects of loathing and disgust to their friends and themselves, and of just opprobrium to their physicians. In hospitals there might be some excuse for its free and practically unlimited use. But in private houses, and particularly in private patients who were going about attending to the affairs of life, there could certainly be no excuse for its use, unless in the rare and altogether exceptional cases in which nothing could possibly take its place. He asked what right any physician had by his treatment to direct the attention of every one to his patient. And yet to-day how few patients who are afflicted with chancroids, herpes, chancre, or almost any other mucous or cutaneous lesion, are spared the infliction of iodoform!

The author gave two examples by way of illustration that had recently come to his attention. The first was a man with a syphilitic ulceration of his face, who had been subjected to the iodoform treatment for a period of four months, absolutely without

relief, the ulcer constantly spreading under the caked and incrustated mass of iodoform. He was the proprietor of a prosperous restaurant in a business part of the city, but the combined odors of the iodoform and the badly treated ulcer drove his customers away, and in less than a year he was bankrupt. The removal of the iodoform and the accumulated filth with proper local and constitutional treatment cured him in three weeks—but his customers had gone never to return. The second case was a man who had been operated on for appendicitis. A fistula resulted—not fecal, but discharging freely a non-odorous albuminous fluid, the only treatment prescribed for which was packing lightly with iodoform gauze. He had his living to make, was able to go about and attend to his business after a long and expensive illness, and yet he was constantly handicapped by the dreadful odor of iodoform, from which he could never escape. The removal of the iodoform gauze and the more thorough drainage by a lead wire healed the fistula in a few weeks.

Dr. Thomas G. Morton said that he did not think the use of iodoform was increasing, but that, on the contrary, it was decreasing. In his ward at the Pennsylvania Hospital there was no patient at present upon whom it was being used. Occasionally, however, iodoform gauze is used as a packing or drain in or about foul cavities. Acetanilid gauze has largely superseded iodoform. A number of druggists who do a large business had told him that the call for iodoform had lessened enormously.

Dr. De Forest Willard said that he used iodoform very little. He would much rather smell fecal pus from the ischio-rectal fossa than iodoform. Thymol diiodide is cheaper and better for fresh wounds. Thymol and acetanilid are sufficient for nearly all cases. He uses iodoform gauze in foul pus cases, but in all clean wounds preferred thoroughly dry sterilized gauze. By using thymol diiodide one is not obliged to pay for the trade name, aristol.

Dr. R. H. Harte agreed that public feeling was opposed to the odor, but he did not think it half as objectionable as many of the perfumes so noticeable on the women who go to the theater. Like every good thing it has been abused, but still it is a valuable drug. All recognize the virtues of mercurial salts, but these also have been abused. He thought iodoform was used nearly as much to-day as ten years ago; certainly during his

half of the term at the Pennsylvania Hospital it was used as much as it ever was. At the Episcopal Hospital it was also used very extensively in the wards by his colleagues. As to the poisonous effects, he had never seen any bad results in his own practise, but he had seen bad effects from it where it was used as a primary dressing in extensive burns. He remembered a series of these cases that were treated by iodoform, and almost without exception poisonous symptoms followed. It was a very valuable therapeutical aid. In tuberculous joints iodoform in glycerin is of great use. It is also very valuable in bone disease. His method of using it in cases where he had removed a large amount of bone was to clean out the cavity thoroughly, wash well with iodoform and glycerin, and pack with iodoform gauze. He thought the results obtained in dealing with bone disease in this way were unquestionably much more satisfactory than with the old methods with carbolyzed oil. Although iodoform was greatly abused, he considered it a most valuable topical therapeutic agent.

Dr. H. R. Wharton said he did not remember ever having seen a case of iodoform poisoning. As regards poisoning, the conditions where it would be most favorable for its development would be in the modern method of using iodoform emulsion injections. He knew cases where it had been used for a number of weeks for tuberculous joints, but he had seen symptoms of poisoning. He did not use it as much as he formerly did, but he believed it to be a very good remedy in certain cases, as in bone cavities and especially in cases of abscess about the rectum, where no packing could take its place. Used in the same way in operations about the mouth iodoform packing remains sweet longer than any other packing. Experience shows that its use is less safe at the extremes of life.

Dr. George Erety Shoemaker said that he had been unable to find anything which would take the place of iodoform in securing cleanliness in a moist cavity. He had had gauze impregnated with aristol, acetanilid, and other materials, but had found that iodoform gauze would remain sweet twice as many days in a moist cavity as would any other preparation. He thought, therefore, that nothing could take its place when, for example, one is obliged to use a gauze drain after abdominal section for serious types of pelvic abscess or in some cases of appendicitis, or in packing the uterine cavity. The

remarkable duration of the influence of iodoform in keeping a drain sweet was recently illustrated accidentally. He had done a vaginal hysterectomy for pyosalpinx and metritis, and had put in three strips of iodoform gauze for drainage. In removing these one piece, about three yards in length, was left behind, and remained in the abdominal cavity for one month with an end protruding into the vagina. During this time it was thought that the correct number of pieces had been withdrawn. The patient made a nice recovery from operation, and at the end of three weeks was up and about the ward, with a normal temperature. The other piece was found at a routine examination and gave no trouble. On withdrawal it was still yellow in places and did not smell offensive. To his mind there was no other substance which would have kept it sweet under such circumstances.

Dr. W. Joseph Hearn said that the rational use of iodoform was as much indicated today as it ever was. Some people use it for syphilis, but it is perfectly useless. It is useful in chancroids, and nothing can take its place. Its use to the public mind has not the same significance now that it formerly had. People used to think it meant venereal disease whenever it was smelled. When he had an operation in which there was pus and he had to drain he used iodoform; where there was no pus he did not need anything. He rarely used the powder in any surgical work, but the iodoform gauze whenever indicated.

Dr. G. G. Davis said there were two classes of cases in which powders are used antiseptically, one in which the drying element was desired and the other in which antiseptics was to be obtained. In the latter case he did not think there was anything to be compared to iodoform. He had tried various substitutes, but they had not compared in efficacy to iodoform. In the other class of cases he thought it was almost immaterial which of the various powders was used. Iodoform is the most reliable agent we have to stop suppuration when actual contact can be secured. It is the most permanent of all the available drugs, and its action does not cease within a short time of its application; neither is it readily dissolved. The gauze impregnated with it retains its action for a long time, and it is for that reason preferable in many cases to a plain packing. Plain gauze becomes impregnated within a day and contains no material for the prevention of the

putrefactive process. Iodoform gauze seems to stop the secretion and prevent further putrefaction. He had tried one after another of the various remedies, and the only one he really felt that he could rely upon was iodoform. For comfort and drying of wounds and absorptive procedures almost any one of the powders can be used with similar results, but not for antisepsis. As regards poisoning, he had seen two or three cases in old people in which there was a certain amount of constitutional disturbance, and in which the iodoform had been used in connection with operative procedures. In those cases one could not determine exactly the relative responsibility of the operative procedures and the iodoform, but subsequently the patients developed delirium or mental disturbance, which he believed was due to the iodoform. Although those which he had seen had not been of an extremely advanced and serious type, still the mental disturbance in those of advanced age had been so marked as to cause him to be very careful with them.

Dr. Thomas S. K. Morton stated that his present employment of iodoform was limited to its use as a gauze for packing and drainage, especially where dryness and antisepsis were required for prolonged periods; as an injection in emulsion with glycerin for tubercular joints or abscesses; and, occasionally, in the shape of a five-grain suppository in tubercular affections of the rectum. He could not remember having used the substance as a dusting powder for several years. He had seen violent inflammations and vesicular eruptions following its use upon the skin, especially when compressed against the cuticle under a splint in children. He had frequently observed more or less serious constitutional effects from a copious use of the powder in former times, and was ever mindful of the unpleasant possibilities even of iodoform gauze packing. For the latter he has never been able to find a satisfactory substitute, but was inclined to think that iodoform gauze as commonly used was entirely too strong. Dr. Morton for two years has had his gauze prepared of five-per-cent. strength in bandages of various widths and five yards long. These are steamed at 230° F. for half an hour, by which time about from one to two per cent. of the iodoform has been vaporized. Hence his gauze, when introduced into a wound, is not stronger than three or four per cent. of its weight. From this weak gauze he had noticed slight congestive symptoms with rise of temperature,

and mild delirium a few times when large quantities had been inserted. The strips were never lost in wounds, because only one continuous piece of bandage was usually put in. Where dusting powders are required, he has come to rely largely upon bolted acetanilid and compound stearate of zinc, or acetanilid and boric acid. Acetanilid as a gauze has been a failure because of rapid absorption of the drug by the tissues. For chancroids he employs a powerful spray of peroxide of hydrogen, and supplies the patient with a half-ounce of acetanilid with instructions to wash with soap and water twice daily, and afterwards heap as much of the powder upon the sore as it is possible to retain. Then the prepuce is drawn over without dressing. This will cure nine-tenths of all chancroids in a few days. The other tenth will require nitric acid or other destructive agent in addition.

Dr. J. Ewing Mears said that possibly he had given iodoform as thorough a test as any one in its use in the cavity of the mouth. He has used it for many years in wounds of the mouth and in suppurating cavities in a five-per-cent. strength. Never had he seen a well-defined case of iodoform poisoning, but in one or two cases he had seen some effect manifested in the urine by its absorption, but no delirium, or any well-defined symptoms. It may appear very strange, but patients do not complain generally of its use in the mouth. They may complain slightly of it at first. The first dressing which he makes is three days after the operation, and then again in two days, but in cases of copious discharge every day. He had had complaints in private practise, and remembered one case who went away, but finally came back, and he tried it again. It was a case of syphilitic ulcer, and he did not care about letting all his friends know of his condition. He had occasionally used aristol, but by preference he employed iodoform. He had seen nothing in his practise which would compel him to give it up.

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*ULTIMATE RESULTS OF CASTRATION AS  
A MEANS OF RELIEF FOR OBSTRUCTIVE  
HYPERTROPHY OF THE  
PROSTATE.*

In June, 1896, the writer published in the *Annals of Surgery* the results of the cases which had been under his personal care in which removal of the testicles or section of the vasa deferentia had been resorted to for

the relief of obstructive hypertrophy of the prostate. He was then able to report eight cases of castration, and three of vasectomy. The amount of relief to the obstructive symptoms which had followed in these cases was very notable, and seemed to justify the conclusion that in these procedures surgery had gained a most valuable resource in dealing with conditions that were not only harassing, painful, and dangerous, but often intractable to any available practicable means of treatment before supported. In the eighteen months that have since elapsed there have been two additional cases in which he has resorted to castration; these he desires now to add to the record:

One case, aged seventy-two years, four months before had been subjected to suprapubic cystotomy and double vasectomy on account of complete prostatic obstruction, not relievable by catheter. At the end of two weeks he found himself able to urinate *per urethram*, after which the suprapubic wound rapidly closed, and by the sixth week was soundly healed, and normal urination seemed restored. This improvement, however, proved to be transient, and marked obstructive symptoms becoming gradually more troublesome again developed, requiring the frequent use of a catheter, which was difficult and painful, until August 12, 1896, when he was subjected to castration. Smooth recovery from the operation followed, with rapid amelioration of his obstructive symptoms, until by the end of four months thereafter he was performing his urinary functions normally, and his general health and strength had become quite restored.

The second case was that of a robust old man, a laborer, aged seventy-five years, who had always enjoyed good health, with the exception of late years of some increase in frequency of urination. Suddenly complete retention developed, which after ten days of systematic catheterization and rest in bed still persisted. The passage of a suitable catheter was not difficult, but the retention remained complete, and rectal examination showed considerable enlargement of the prostate, the right lobe being the larger. The degree of intelligence and the social state of the man were such as to preclude the idea of teaching him to use a catheter in a cleanly way, and any attempt in that line, it was believed, would have been the beginning of infective cystitis. He readily acceded, however, to the suggestion to

have the testes removed. This was accordingly done November 8, 1897. Uncomplicated healing without any mental disturbance followed the operation. No change in his condition of urinary obstruction was noted until the twelfth day thereafter, when he twice during the day voluntarily voided a little urine, but from fifteen to eighteen ounces of residual urine still persisted. This was still his condition one month after operation, but from this time a gradually increasing freedom in voluntary urination was noted, until December 23, six weeks after the castration, he was urinating with apparently normal freedom, and the introduction of a catheter immediately after urination showed that there were but two ounces of residual urine.

The favorable immediate results obtained in these two cases, now first reported, are similar to those experienced in the preceding eight, and are like those met with in a very large number of cases which have been reported by others.

There has been no mortality, or even suggestion of danger of such an event connected with the operation in these cases, although Cabot, writing in 1896 (*Annals of Surgery*, June, 1896), found a mortality of 19.4 per cent. to have attended the cases collected by him from various sources (203 cases, 39 deaths). But, obviously, it is one thing that death followed an operation, and quite another thing that death was due to the operation!

It would, perhaps, be a more just interpretation of the facts to say that in a considerable proportion of the reported cases—about twenty per cent.—the conditions preceding the operation had been such as to entail a speedy fatal result notwithstanding the operation, not denying the fact that probably in some instances the inevitable end had been accelerated by it, for the remark is also a just one that a serious pathological condition, in the course of which a surgical operation is done, is prone to be aggravated by such operation, if by it the condition is not at once greatly relieved. Castration done on a patient moribund with uremia; castration done on a patient profoundly prostrated by sepsis from a suppurating prostate or kidney, or necrotic bladder; castration done on a patient with overdistended bladder with pressure effects upon the kidney; castration done on a patient worn out with the suffering caused by the presence of a calculus in the bladder, will, if unaccompanied by the measures required for the immediate relief of the urgent

conditions, be productive only of harm. It is quite evident that castration should not be resorted to in such cases as these mentioned, until after the pressing emergency has been relieved by the use of appropriate measures and a favorable state has been created for the introduction of a procedure which may gradually, and possibly only after the lapse of weeks, induce a subsidence of the prostatic obstruction. The value of such a course is strikingly illustrated in two cases of his series, in each of which by suprapubic cystotomy free bladder drainage was provided for and maintained for some weeks before resort was had to castration.

Of more importance is the possible effect upon the mind and disposition of the man produced by withdrawing from him the special stimulus furnished to the economy by the glandular products of the testes.

Acute mania, dementia, and gradual loss of vigor, causing the patient after a time to succumb to conditions which before the removal of the testes had been well borne, are the states which have been more especially ranked as fairly frequent sequelæ to the operation. The later history of castrated prostatics is therefore of special interest from this point of view. In the previous report the author gave the details of one case in which a distinct tendency to dementia developed immediately after the operation in a man seventy-two years of age, with an atonied overdilated bladder, dribbling at thirty-seven ounces. At the end of three months, however, by which time the function of urination was being normally performed, his mental condition had greatly improved. His later condition is unknown to the author.

One man, sixty-eight years of age, died of dysentery some months after castration.

One man (the second case reported in this paper) is of too recent date, as an *opéré*, to have any late history. The remaining seven cases the writer has been able to follow, and their condition to day, in brief, is as follows:

CASE I.—Time since castration, three years; present age, seventy-seven; hale, hearty, and active physically and mentally. Still has five ounces of residual urine, which he evacuates with catheter night and morning. Urinates spontaneously every two or three hours.

CASE II.—Time since castration, two and a half years; present age, fifty-eight; a clergyman in charge of an important church; states that his physical vigor and his mental grasp have notably improved since operation. His originally long overdistended bladder, drib-

bling with sixty-four ounces, still halts with ten ounces of residual urine, requiring catheter for its removal.

CASE V.—Another clergyman. Time since castration, two and a quarter years; present age, fifty-four years; still continues to preach with acceptability and to administer the affairs of his parish with prudence. Still has some residual urine and a chronic cystitis, which requires the use of a catheter and daily irrigation of the bladder to keep under control. Reports that urination is now attended with more difficulty and pain than it was during the first year after the removal of the testes.

CASE VI.—Time since castration, two years; present age, sixty-seven years; general health excellent; mental grasp undiminished; still attends actively to the affairs of an important business. His chief annoyance has been the frequent occurrence of uncomfortable flushes of heat similar to those experienced by women at the time of the menopause.

CASE VII.—Time since castration, one and three-quarters years; present age, sixty-four years; in good health, sound mind, and free from all urinary disturbance.

CASE VIII.—Time since castration, one and three-quarters years; present age, seventy-two years; in good health, sound mind, and free from urinary disturbance.

CASE IX.—Time since castration, one and a half years; present age, seventy-four years; is hearty and vigorous; devoted to equestrian exercise; manages with skill a spirited horse.

This completes the record of the writer's personal experience to January 1, 1898. Certainly in these cases the relief from the special sufferings and difficulties incident to obstructive prostatic hypertrophy has been great; in some of the cases it has been complete, the freedom of urination having been restored to the normal point; in others, some obstruction persists, even after the lapse of some years, requiring catheter-help at times, but in a degree very much less than before castration.

This relief has been secured by a procedure that has been free from pain and has been attended with but little, if any, risk to life; the worst blur upon the record is the infliction of a few weeks of childishness upon one patient. The procedure is one that demands no special surgical experience, nor elaborate ménage, nor peculiar or costly instruments for its proper performance. It seems to the writer that it has at least won a

place for serious consideration whenever the problem of the relief of urinary obstruction due to prostatic hypertrophy is presented for discussion.—LEWIS S. PILCHER, in the *Annals of Surgery*, May, 1898.

*A SIMPLE METHOD FOR CONTROLLING HEMORRHAGE DURING DISARTICULATION OF THE HIP.*

LYNN THOMAS, in *The Lancet* of April 23, 1898, says that in emergencies the ideal method for controlling hemorrhage in amputation is undoubtedly that which requires no special instruments in one's operating-bag. Perhaps the majority of the younger surgeons do not realize that the loss of blood is quite insignificant in disarticulation of the hip by the anterior incision because the femoral artery and vein are ligated at the outset of the operation (Treves). The author thinks the amount of blood lost is less than the quantity of blood driven into the body by vertical elevation of the limb for a couple of minutes prior to the operation. In a properly equipped operating-room, surrounded by competent assistants, the surgeon can adopt either a simple or complicated method of arresting the hemorrhage with equal comfort and confidence of success; but in a badly lighted room with incompetent or inefficient assistance in a private house amputation at the hip becomes a very serious and anxious undertaking unless one happens to possess two one-foot skewers and at least two yards of india-rubber tubing in the operating-bag (Wyeth's). In Swain's "Surgical Emergencies" (fifth edition) Davy's lever and Jordan Lloyd's methods are the only two referred to in connection with the arrest of hemorrhage in disarticulation of the hip. The first method is practically obsolete, though extremely ingenious, and very few men are *au fait* with the other method.

During the last twelve months the author has had to disarticulate at the hip on three occasions, once at the infirmary and twice in private practise: (1) For sarcoma of the femur; (2) for osteomyelitis of the femur; and (3) for an injury. On one occasion he used with satisfaction the following method: The common femoral artery and vein were temporarily compressed immediately below Poupart's ligament. At this point the artery is quite superficial and easily felt and is well above the origin of the deep femoral artery. The femoral pulse being felt, he made two stab punctures in the skin, one about an inch outside the pulse and the other about two

inches to its inner side—*i.e.*, immediately below the pubic spine. An aneurism needle with two eyes (Horsley's pattern), which he always carries in his bag, was pushed from one stab puncture well behind the artery and vein to the other stab puncture, and two long, thick silk sutures were carried through in withdrawing the needle; then a pad of Gamgee tissue was rolled up and placed over the artery between the punctures, the two silks were tied separately over the Gamgee tissue, and thus the vessels were efficiently and satisfactorily occluded during the operation. It is advisable to simply tie the first stage only of the surgeon's knot and clamp it with the forceps, and by this means we can easily retie if necessary when letting go after ligating the visible blood-vessels on the face of the stump. The only condition which might embarrass one in adopting this method of controlling hemorrhage in amputation at the hip would be the occurrence of an irreducible femoral hernia. There is a method of controlling the same vessels by means of a large Doyen's broad ligament forceps; only one puncture is made on the outside of the femoral pulse, and one blade is forced through behind the vessels and then the forceps is clamped. This method would be quicker and would take only a few seconds to apply, but it means the acquisition of a special instrument which is not in every operating-bag, whilst the first method requires nothing beyond the essentials of every operating-bag.

The author is not aware that the principle of underrunning the vessels with silk and tying it over them has been applied to the common femoral vessels before, whilst it is a recognized method of treating cirroid aneurism of the scalp. It is hardly necessary to add that after placing the ligatures and pad (in the method he once adopted successfully) it is necessary to elevate the limb to drain it of its blood before tying the knot tightly. If one were amputating at the shoulder-joint single-handed the same method would be found very useful.

*THE SURGERY OF THE KIDNEY.*

HENRY MORRIS in an important article on this topic in *The Lancet* of April 23, 1898, thus summarizes his views:

1. That the aim of the surgical treatment of renal calculus should be to extend the application of nephrolithotomy and thereby restrict the necessity of nephrotomy and nephrectomy.



2. That more frequently than not the failure to find a stone is not in reality a failure of treatment, because there are so many curable morbid conditions which mimic renal calculus and which are discoverable only by exploration.

3. That the theory that a stone in one kidney, whether that kidney is itself painful or not, reflects or transmits pain to the opposite kidney is quite unproven; that it is a dangerous theory, calculated to lead to very erroneous practise, and that the surgical principle with regard to exploratory operations should be that with pain, paroxysmal or continuous, on one side only, the kidney on the painful side should be explored.

4. That nephrectomy for calculous conditions is very rarely called for and should be done only in most exceptional cases. Nephrotomy for calculous pyonephrosis is the proper operation, because of the frequency of double calculous disease. Experience has shown that kidneys from which stones weighing 830 grains and 1300 grains have been removed are functionally sufficient to maintain life during the blocking of the ureter and the suspension of the function of the kidney of the opposite side.

5. That nephrectomy whilst the opposite organ is occupied by calculus is fraught with very great danger to life; whereas nephrectomy after the opposite kidney has been freed from stone will probably be followed by recovery from the operation and possibly by very good health for years afterward.

6. That when renal calculus causes reflected or transferred vesical or ovarian pain, the removal of the calculus will be followed by complete cure of the bladder or ovarian symptoms.

7. That in some cases renal calculous conditions are attended by very remarkable nervous symptoms, sometimes with, sometimes without, high temperature, and that information as to the cause of these symptoms is needed.

8. That unsuspected renal calculi are a source of very real danger to their possessors, and when, whether by accident or by the systematic examination of the urine, we have cause to suspect the presence of a calculus we should recommend its immediate removal regardless of the fact that it is not causing renal or transferred pain.

9. That quiescent calculus is as dangerous to the individual as unsuspected calculus and ought to be removed by operation.

10. That the hitherto accepted teaching that

a renal calculus, if causing only mild symptoms or attacks of renal colic of only recent occurrence, should be treated on the expectant plan ought to be discarded as unsound in theory and dangerous in practise.

11. That the same principle should be applied to renal calculus which has long been the rule in regard to vesical calculus—namely, when suspected it should be searched for, and when known to exist, removed, without waiting in the hope that it may become encysted or spontaneously expelled.

12. That the very low mortality of nephrolithotomy puts this operation upon the same footing for renal calculus as lithotripsy in the most experienced hands for vesical calculus.

#### CLINICAL REMARKS ON STRICTURE OF THE URETHRA.

HARRISON in *The Lancet* of April 23, 1898, writes on urethral stricture and thinks that the following classification of strictures is one which may be conveniently used for clinical purposes: First, those amenable to some form of dilatation; second, those found to be unadapted for such treatment and where other measures should be considered; and third, those which may have been regarded as impassable strictures. The author limits his remarks to questions arising under these three headings.

The first class includes by far the greatest number and all strictures in their early stages. When this process of treatment proceeds satisfactorily, as it usually does, the patient is soon able to take the management of his own case after he has been instructed in the use of the appropriate instrument. For whatever is done in the way of treatment by dilatation or otherwise, in the majority of advanced forms of urethral obstruction the patient can seldom hope to entirely dispense with the passing of a bougie. When a person who is suffering from symptoms which may indicate stricture presents himself for the first time, much care is required in exploring his urethra with a catheter or bougie. It is very easy to spoil a stricture and so lose the way through it. Thus future access to the bladder may be rendered rather more than less difficult. On making an examination of this kind the aim should be to ascertain, without causing pain or bleeding, if possible: (1) the presence and position of the obstruction, and (2) the degree of contraction that has been arrived at. It is undesirable to endeavor to pass an instrument into

the bladder without knowing all this beforehand, otherwise we may easily select one too large for the purpose and so in the first attempt do more harm than good. The thinnest end of the wedge must first be inserted, and then the dimensions of the contraction can be readily and accurately gauged.

In view of giving effect to these points the author described fifteen years ago a flexible conical bougie or dilator which, so far as his experience of it goes, has superseded most instruments of this kind and has been the means of considerably reducing the number of what are called impassable strictures. These instruments are used both for locating and measuring all kinds and degrees of urethral stricture. They are about twenty inches long, commencing with a fine probe-ended extremity, which gradually expands in the opposite direction. They are made in different sizes and are rendered extremely flexible when placed in warm water for a few minutes, if necessary, before using them. In this way they will readily coil up within the bladder. He much prefers the French make (Lassère's); he finds them useful, not only for the purpose he has mentioned, but for smoothing out a rough urethra and making the access to a stricture funnel-shaped, so that it may be easily entered by almost any other instrument. The late Mr. Lund, of Manchester, christened them "whips" when the author first showed them and he adopted them, and they have since always gone by this name. Bangs' filiform bougies, made on the same principle of the finest whalebone, are applicable to even more contracted forms of obstruction, such, for instance, as the eccentric pin-hole strictures which are occasionally met with. They may also often be used with advantage as pilots for the "whips." The author can strongly recommend both of these instruments to practitioners who are liable to meet with stricture cases and have not hitherto given them a trial. Either of them will do duty in an emergency in relieving a retention of urine in the absence of a catheter by at once dilating the stricture to almost any extent by a single introduction of the instrument. On its withdrawal the patient is usually able to empty his bladder immediately by his own efforts. He has frequently used them in this way with prompt relief. He thinks they should be more generally known. No force can be exercised by them, otherwise they will double up and the object is defeated.

Passing to the second class of cases, which

includes strictures found on trial to be unadapted for any form of dilatation when for any reason a large amount of scar tissue has been imported into a stricture—as, for instance, in obstructions following wounds and injuries of the urethra—it may be found impossible to sufficiently dilate the contraction which follows. This may proceed from some difficulty in connection with the access or entrance to the stricture, as when damage has been done to the interior of the urethra, from the inherent contractility of the tissue composing the obstruction, or from certain constitutional disturbances following attempts at dilatation even of the gentlest and most gradual kind.

In instances such as these and the like immediate and permanent good to the stricture may be done which will not yield to dilatation alone, and thus prevent the bad effects of back pressure gradually extending to the bladder and kidneys above, by introducing a splice of new material into the contracted portion of the canal, much on the same principle as we should expand a tight garment. For these purposes the author usually selects Maisonneuve's instrument. It consists of a fine pilot and director upon which runs a small triangular knife dulled at the apex. It can thus only divide the contracted portion or portions of the canal, and this it does by a clean linear longitudinal incision corresponding in depth with the size of the blade. As healing takes place, under the use of a bougie a splice or interval of new tissue is introduced between the lips of the incision, and thus the caliber of the canal may be considerably increased in a short time. For forty-eight hours or so before this is done it is well to sterilize the urine with some boric acid taken by the mouth in small doses, or with what he has found still better, boracite. The former sometimes produces indigestion, whilst the latter is both pleasant and reliable. The filiform pilot is then passed through the stricture into the bladder, the fine metal director following it. The urethrotome is next run along the groove into the latter, and the stricture or strictures are divided from before backwards. Care should be taken not to run the blade further than the last point of contraction, so as to avoid touching any fibers of the sphincter. The latter is unnecessary and may cause some bleeding. To make sure that all stricture fibers are severed and a clear interval is provided between the lips of the incision thus made, a short series of Lister's metal bulbous bougies

(10 to 15, English gauge) should be successfully passed before the patient recovers from the anesthetic. The ordinary round-ended bougies are not suitable for this purpose, as they may catch in the lips of the wound. It is a matter of much importance to secure a perfectly smooth, soft scar. All metal instruments for use in connection with a strictured urethra should be bulbous or olive-headed. The bladder is then emptied of any urine it may contain and washed out with a solution of perchloride of mercury (1 in 6000) until the lotion returns quite clear. An ounce or so of the solution is left behind in the bladder, so that the first portion of the urine voluntarily passed is sterilized.

This completes an operation which need not occupy more than a few minutes. Carbolyzed vaselin (three grains to two ounces) is used for the instruments. The author rarely ties a catheter in the bladder unless, as sometimes happens, a chronic stricture has induced an atonic bladder, when a soft-rubber catheter may be retained for forty-eight hours or so; otherwise we may have high temperatures until the viscus is artificially emptied. With these antiseptic precautions there is seldom any marked degree of urinary fever. On the fourth or fifth day after a whip bougie is generally passed, and the patient is instructed in the use of a suitable instrument. For many years Maisonneuve's operation has commended itself to the author on the grounds of its simplicity, its adaptability to the most contracted forms of stricture, and the benign character of the scar tissue which usually results. He has therefore referred to some details to which he has learned to attach considerable importance. The extension of the antiseptic principle to these operations has in all respects greatly benefited them.

Still more rarely there are cases of stricture met with where neither dilatation nor internal urethrotomy will cover the ground the contraction occupies. Instances occur when, by reason of contraction, abscess, and fistula, the perineum and urethral wall become matted together and converted into a hard mass of dense warty-looking tissue which can be only successfully dealt with by some form of perineal section. This, however, though the cases may be comparatively few, is a subject of itself and requires a consideration which cannot be included within the limits of these remarks.

The author passes on to the third division of his classification—patients who present

themselves for treatment on the ground that they are suffering from an impassable stricture. In the author's earlier days he was much impressed by the teaching of Syme, indorsed by Bickersteth, of Liverpool, in his practise, to the effect that such a term as "impassable" could only be used in a somewhat relative sense and was inapplicable unless the canal was structurally or, if he might use the term, hermetically closed, as, for instance, when a urinary fistula coexisted. Syme thus refers to this point: "There is nothing of more consequence in the treatment of stricture than knowledge of the fact that this alleged impermeability has no real existence except in those cases where the urethra has been divided by violence and allowed to cicatrize with obliteration of the passage beyond the opening at the seat of injury. It is obvious, indeed, that if the urine is permitted to pass, no matter in how small a stream, there must be room for the introduction of an instrument, provided it is sufficiently small and properly guided." This is a high ideal to take and to attempt to follow, but it puts into prominence the first principle associated with the treatment of urethral stricture, whatever form it may assume. Though we may fail to attain it, the possibility of doing so in a legitimate and scientific manner should never be lost sight of. If such a conclusion as this could have been arrived at in the time of Syme, how much more so is it within our reach in the present day, after what has been done in improving the construction of all kinds of instruments used for this purpose. Though much patience and tact are required in obtaining access to the bladder through a contracted stricture, failure, he believes, need now but rarely occur. Nor is the attainment of this a matter of indifference relative merely to the adoption of one out of two eligible courses. Experience shows that as there are strictures which need not be cut merely because they may seem in the first instance to be impassable so far as a bougie is concerned, so there are strictures which though passable in this sense are yet found to need cutting. No sufficient answer can be given to the important question that is thus raised until a stricture has been fully explored, and this he believes can be generally done. For an impassable stricture he does not think there can be any better alternative than the one associated with the name of Mr. Wheelhouse, where the contraction is sought for by opening the perineum. It

would, however, not be difficult to find many surgeons largely engaged in operative work who have never availed themselves of this proceeding on the ground that a stricture had resisted all legitimate efforts to enter the bladder along the urethra.

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## Correspondence.

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### *LONDON LETTER.*

By RAYMOND CRAWFORD, M.A., M.D. OXON., M.R.C.P. LOND.

The holidays are now close upon us, and the medical year may be said to come to a close with the meeting of the British Medical Association at Edinburgh in the last week of July. In the Section of Therapeutics was an interesting discussion on the treatment of chronic renal disease, which is particularly desirable at this time, when a revolution so to say of the traditional treatment of this disease has been brought about. Dr. Ewart has recently contributed some ingenious suggestions on this subject to the Clinical Society of London. He starts with the assumption that in most cases of tubal nephritis the disease is confined to the epithelium, and represents a condition of inveterate epithelial catarrh that should be treated on these lines. We fancy, however, that if Dr. Ewart were to carefully examine with the microscope any dozen successive kidneys of tubal disease, he would find a much greater constancy of intertubular change than he seems to suppose exists. However, this in itself should not tempt us to neglect the catarrhal factor as has been done in the past, any more than we would neglect bronchitis in a lung where interstitial pneumonia was present. Dr. Ewart regards renal edema as Nature's safeguard against fatal intoxication, and at the same time, if allowed to persist, as Nature's great difficulty and danger. Thus the edema chokes the lymphatic system, disturbs the processes of nutrition, and hinders the recovery of the kidney by blocking its drainage. Ewart suggests that if systematic drainage of the lymphatics can be insured, the kidney may be left very much to itself; in fact, he would have us regard the danger of tubal nephritis as lying in the lymphatic system rather than in the kidney. He would coax the effusion by gravity to the lower limbs, where it can be continuously drained by aseptic scarification, or by Southey's tubes; this he effects by raising the head of the bed.

At the same time the edema of the upper extremities may be relieved by massage, and that of the serous sacs by paracentesis. He claims to satisfy indications of prime importance by this method, such as the constant removal of contaminated fluid, physiological rest to the kidney by opening another channel of excretion, and restoration of circulatory equilibrium. Ewart suggests that in nephritis, as in pneumonia, the inflammatory products are mainly removed by the lymphatics, and that a free lymphatic flow is for this reason a first indication in nephritis. It is difficult to negative this hypothesis, but it is a matter of common observation that a large amount of inflammatory excreta escape in the urine, so long as the lymph channels are blocked. Such a view certainly has a clinical analogy in many cases of pneumonia, in which an extensive consolidation undergoes resolution without any increase in the sputum, while in other cases the whole work seems to be done by expectoration rather than by reabsorption.

Dr. Ewart condemns the orthodox treatment of tubal nephritis: (1) Because instead of relieving edema, the tendency has been to promote its permanence; (2) because it has not supplied physiological rest to the kidney; (3) because the kidney has been provoked to diuresis when its functions were already in abeyance, while diaphoresis and purgation have drained the strength of the patient, rather than his edema; (4) because the diet most suitable to the constitutional condition of the patient has been withheld. Ewart adopts a far more liberal diet than is generally conceded, on the theory that the toxic products are constantly removed by the systematic drainage. We can confirm from experience in several cases that it is possible to keep up continuous drainage by linear scarification for weeks and even months without ill effect, provided full antiseptic precautions are observed throughout. Along with an ordinary mixed diet he allows a moderate amount of tonic wine such as Burgundy or claret for the general well-being of the patient. Again he maintains that with the reestablishment of the lymphatic circulation drugs can be used, such as digitalis, with much greater effect on the heart and kidney, and this is a proposition that every physician will indorse. Ewart suggests that uremia may be relieved by draining dropsical fluid, as it has been relieved by venesection, and with less call on the strength of the patient. Having regard

to the nature of the effused fluid, which has recently been very fully investigated by Bradford, this would seem to be probable, but such a slow method of relief could be of little practical value in any case of acute uremic manifestations. There is much in Ewart's suggestions that should be carefully weighed in the balance of clinical experience. It would certainly seem reasonable to aim at a more radical treatment of the renal block, on which, apart from the nephritis, much of the albuminuria depends, both for the purpose of restoring the excretory function of the kidney, and therewith also maybe its power to produce an internal secretion of essential value to the economy. We fancy Dr. Ewart's eyes are riveted too closely upon the kidney, and before a verdict could be given on the curative efficiency of his suggested treatment much would have to be said of the heart and of other organs.

Our indefatigable Colonial Secretary has set on foot a scheme for establishing a School of Tropical Medicine in connection with the Seamen's Hospital at the Albert Docks. Now that a large portion of the tropics is included in the Empire it is certainly proper that the medical men of the colonial service should have some facility for the study of tropical diseases, which hitherto has been completely neglected in this country. The Seamen's Hospital has long provided material from all parts of the world, and only some solid scheme is necessary to make it available for students. The school which it is proposed to found in connection with the hospital will have the advantage of Dr. Patrick Manson's knowledge of tropical diseases, and there should be no difficulty in finding adequate lieutenants among the members of the colonial service. The Colonial Office is to supply a portion of the building fund, together with the annual fees of students who propose to enter the colonial service. It is hard to see why the India Office and the Foreign Office on behalf of its protectorates in East and West Africa should not support the scheme, and supply some of the cost of maintenance. Such a school, with a well equipped laboratory and facilities for research, such as are promised, should attract students from other countries than our own.

Dr. Maclellan contributes some notes on alginic acid and some of its compounds as therapeutic agents to the July number of the *Glasgow Medical Journal*. Alginic acid is a new organic acid obtained from algæ. We are not here concerned with the uncombined

acid, for which Maclellan gives the empirical formula  $C_{76}H_{80}N_2O_{22}$ , but rather with the compounds of the acid. The alginates of the alkalies and magnesium are soluble, but those of the alkaline earths and heavy metals are insoluble, though many may be rendered soluble by ammonia. Maclellan suggests that alginates of many of the alkaloids might conveniently be introduced into the list of official remedies. All the alginate salts have the peculiarity that they are but little acted on by pepsin, and may therefore be used when it is desired that they should pass through the stomach unchanged. The paper deals at length with alginate of iron, which is a tasteless, brown, insoluble powder, and contains a very large proportion of iron, viz., 10.92 per cent. It is best administered in the form of powder, and may be given to adults in doses of from ten to fifteen grains thrice daily. Maclellan had thus employed it in several cases of chlorosis, where there were marked symptoms of functional or organic derangement of the stomach, and found it well tolerated, when the stomach rejected other preparations of iron, such as the saccharated carbonate. The alginate seems to be free from the astringent properties of many iron compounds, which tend to produce troublesome constipation, and on the other hand seems to avert this ill consequence by its tonic influence on the intestinal muscle. Maclellan attributes the tolerance of the stomach to this compound to the fact that alginates are but slightly acted upon by pepsin. If further observation bears out these flattering accounts, we should possess in alginate of iron a compound of first-rate value in therapeutics.

Most of us at one time or another have been at our wit's end for some new suggestion in treatment to employ in cases of Graves' disease after the orthodox list of remedies has been tested and has failed. Semple speaks favorably in the *British Medico-Chirurgical Journal* of a combination of the Schott treatment with Weir Mitchell treatment, aided and abetted by drugs and careful regimen. It is hard to see how we can look for curative effects from such a combination, seeing that the circulatory disorders are only a small part of the disease. We have recently employed suprarenal extract in several cases of Graves' disease with marked benefit to all the symptoms, even the thyroïdal tumor. We have no doubt that great benefit to the condition of heart-hurry and heart weakness may be thus obtained in a

very large number of cases, and if as is possible the exophthalmus and thyroidal tumor be due respectively to dilatation of the retrobulbar and thyroidal arteries, the use of so powerful a vasoconstrictor is not without support in rational therapeutics. Now that pathologists are convinced that Graves' disease is to a very large degree a psychosis, one can hardly look for cure from remedies that at best tickle the periphery, while leaving untouched the *primum mobile*—the psychical disorder—that underlies the disease. Rest of mind, freedom from worry, and allaying of the ever-present apprehension are the first essentials in treatment; rest of body, careful regimen and drugs are only useful in so far as they minister to tranquillity of mind by improving the general well-being. The very common association of rheumatism with Graves' disease is of much interest viewed along with its very common association with chorea. In the latter disease we almost certainly have to deal with disordered equilibrium of the cortical motor cells, so that they discharge in an ill-restrained manner. May it not be that rheumatism also predisposes to the psychical disorder, which consummates in Graves' disease, by this selfsame effect on the cortical cells? Of late years influenza has appeared in not a few cases as the immediate precursor of Graves' disease; may we not look to the same locality for an explanation of this conjunction? For such reasons as these we can only regard as a palliative any remedy that is not primarily directed to the relief of the central nervous disturbance.

Among books of note that have been published recently in this country we would specially call attention to a Manual of Surgery by Rose and Carters. A happier combination could not have been found than these disciples respectively of Sir William Ferguson and Lord Lister. The volume provides a very large amount of knowledge in a very succinct form and free from the faults that usually result from compression. We can heartily recommend the volume to students of all classes, and also to the general practitioner whose interest in his profession has not died with the attainment of a diploma.

Sir William Stokes, Bart., surgeon-in-ordinary to Her Majesty the Queen in Ireland, reported upon thyroidectomy in exophthalmic goitre to the recent meeting of the British Medical Association. He thought the following case worthy of record, inasmuch as it lends color to one of the many theories of

the causation of this disease that have been propounded from time to time: G. D., aged thirty-two, was admitted to the Meath Hospital under the care of Dr. Craig in October, 1894. The clinical condition presented the familiar features and was definitely attributed to a fright from seeing a friend of his killed by a threshing machine. He was treated with ergotin and belladonna, and subsequently with thyroid extract. His general health became much improved, the tumor in the neck decreased in size, the eyes became less prominent, and the tremor subsided. The improvement, however, was only temporary, and he was readmitted to the hospital in May, 1896, with an aggravation of all the existing symptoms. The patient was then anemic. The thyroid was enlarged, particularly the central lobe, which was about the size of a large Tangerine orange; the lateral lobes were also somewhat enlarged. The circumference of the neck at the most prominent part of the enlargement was eighteen inches. There was a systolic murmur heard over the gland and a bruit in the vessels of the neck. The heart's action was very irregular, but not very fast, and there was a slight trace of a systolic murmur in the mitral area. This was probably hemic in character, as it was not constant and disappeared on excitement. The eyes were prominent, the palpebral orifice enlarged, and there was well marked nystagmus; neither von Graefe's nor Stelwag's signs were well marked. There was tremor, but no skin pigmentation; no local nor general edema; the urine was normal. Sir William Stokes at this stage removed the large central tumor. A smaller growth about the size of a pigeon's egg was found lying to the right, but on a posterior plane; this was also removed, and with it a portion of the right lobe of the thyroid. The only feature of special interest in the course of the operation was paroxysms of alarming dyspnea; while after the operation severe syncopal attacks accompanied by profuse sweating necessitated the constant use of diffusible stimulants. In three weeks the patient was able to leave the hospital with marked amelioration of all his symptoms. In many respects the case runs parallel to that published by Lord Lister in 1877, although there was none of that mechanical compression by the tumor which in his case threatened life by suffocation.

In reference to the therapeutics of this malady we find as great diversity of opinion

as in regard to its etiology and pathology. Professor Bruns (*Berl. Klin. Wochenschr.*, 1896, p. 406) holds that it is quite exceptional for the goitre to diminish under the administration of thyroid preparations, and that under their influence the cardiac and nervous symptoms as a rule get worse. The simple hyperplastic form of goitre appears to be the one that is specially amenable to thyroid medication. Among physicians there is pretty general agreement that treatment by thymus gland is entirely useless. Dr. Hector Mackenzie finds "that the thymus gland possesses no specific action in Graves' disease. I have found it in most cases to have no effect either on the heart, on the goitre, or on the exophthalmus." The results obtained by operative treatment point distinctly, in Sir William Stokes' opinion, to the thyroid being the seat of the primary lesion. For example, Lemke, of Hamburg, who is a strong opponent of the neuropathic nature of Graves' disease, believing that the symptoms are due to toxic agencies originating in the thyroid gland, strongly advocates surgical treatment. M. Allen Starr (*Medical News*, April 18, 1896) has published a statistical record of 190 cases, a large proportion of which were permanently benefited by operation: seventy-four are reported as cured, forty-five improved, and three not benefited. He states that twenty-three of the cases died immediately after the operation, which could not be attributed either to hemorrhage or sepsis. He attributes the calamity to a poisoning of the entire system by absorption of thyroid juice during the operation. This he thinks may result from an excessive handling of the tumor during operation, from "absorption of torn vessels, or hypersecretion due to the employment of ether as an anesthetic." He suggests, therefore, that some other anesthetic should preferably be employed, and mentions cocaine as recommended by Kocher. The symptoms preceding death were those of collapse and cardiac failure.

Among other methods of operative treatment adopted in these cases mention should be made of Trousseau's suggestion of local depletion, also Jaboulay's exothyropexy, which consists in stripping the capsule from the gland and fixing the latter in the superficial wound so as to produce shrinking from exposure to air and from thrombosis of the venous sinuses. Also division of the cervical sympathetic has been suggested, and ligature of the thyroid arteries. Of drugs we may take Osler's estimate that all are "notori-

ously uncertain." Sir William Stokes claims in regard to the case he communicates that as two years have elapsed since the operation without any recurrence of the symptoms, the treatment adopted may be considered as successful.

Professor Mayo Robson (Leeds) read a paper on a series of cases of choledochotomy; including three of duodenocholedochotomy. He remarked that at the present time it may be confidently asserted that there is no portion of the gall-bladder, cystic, common or primary divisions of the hepatic ducts, which cannot under ordinary circumstances be reached for the removal of gall-stones, and that in operating on the gall-bladder and bile-ducts it is better to begin with an open mind, prepared for any of the various operations on the biliary passages, as it is usually impossible to say what may be required until the ducts have been explored by the fingers and the condition of the parts ascertained. After describing the various operations which may be employed for the removal of gall-stones from the common duct, he proceeded to consider some of the details of the operation—some of the said points being the placing of a sand-bag under the back before operating, which brings the common duct nearer to the surface; exploring the common duct when possible by the finger introduced through the incision in the duct so as to avoid leaving concretions; and the administration of chloride of calcium before and after operation in order to avoid the bleeding which is so apt to occur in deeply jaundiced patients.

In remarking on the prognosis, Robson said that he had operated directly for gall-stones in the common duct in forty-nine cases, with three deaths, giving a mortality of 6.1 per cent. These deaths occurred, one after cholecystenterostomy and two after choledochotomy, and in all three the jaundice had been long-continued and deep and associated with infective or suppurative cholangioitis. After cholelithotripsy he had not had a death.

The author gave a table with a brief history of seventeen choledochotomies which he had performed, and concluded his remarks by saying that as experience increased he hoped and believed that the mortality in choledochotomy would be reduced to five per cent., though even if it should remain higher, it must be borne in mind that nearly every recovery is a life saved, for in the greater number of these cases of gall-stones in the

common duct death after prolonged suffering is the usual termination.

Robson also read a paper on three cases of partial hepatectomy for cancer. He remarked that out of nearly 300 operations on the liver and bile-ducts, he had operated in one way or another on thirty-five cases of malignant disease, but out of this number he had only met with three cases in which it seemed feasible to attempt complete removal of the disease by taking away the gall-bladder and the adjoining part of the liver. Of these three, one died shortly after operation from shock. The other two completely recovered from the operation, but only survived a few months before there was a recurrence of the disease. The method he had adopted in all the cases was to apply an elastic ligature below pins which transfixed the cystic duct and the liver tissue.

The author remarked that it was a curious fact that in two cases where he had closed the abdomen, thinking the disease to be malignant, and where in one case cholecystotomy had been done and in another a simple exploratory incision, complete and permanent recovery had followed. It was of course possible that these cases had not been malignant. On the other hand, the question was raised as to whether they should not come under the class of cases of cure by operation *per se*. He advised exploration in all doubtful cases, if in a condition to bear it, since in several he had found the disease, previously thought to be cancer, to be inflammatory, and the patients had been completely cured by operation.

In conclusion the author expressed the following opinions:

1. Seeing that statistics from various countries and by many observers agree in showing the frequent association of gall-stones and primary cancer of the gall-bladder and liver, it is desirable that cases of cholelithiasis should be submitted to surgical treatment at an earlier stage than has hitherto been the custom.

2. In all cases of tumor of the gall-bladder, even if unaccompanied by symptoms, an operation should be advised and the obstruction, usually a calculus, should be removed.

3. If these rules were followed, primary cancer of the gall-bladder and liver would probably be less frequent.

4. If early operation in cases of tumor of the gall-bladder were followed out, even if primary cancer had commenced, it could be caught in an incipient stage, when a com-

plete cure by partial hepatectomy might be reasonably hoped for.

5. An exploratory operation, even in a patient seriously ill with a localized tumor in the gall-bladder region, is worth advocating though malignant disease be feared, in the hope that the disease may be inflammatory and so capable of relief.

6. If there are any secondary nodules in the liver, or if adjoining viscera are invaded, the operation had better be terminated as a simple exploratory one.

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#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

Ever since the discovery by Eberth and Gaffky of the microbe of enteric fever pathologists have endeavored to bring about cases of infection in animals by the administration of the germ by the mouth. Not long ago Sanarelli, after having treated various animals with the toxin of enteric fever, had come to the following conclusions, namely, that the pathological alterations to be found on the surface of the intestine in this affection are not directly caused by the microbe, but are the result of its toxins—*i.e.*, the bacillus taken into the system causes necrosis of Peyer's patches by means of its toxin.

Professor Chantemesse, of Paris, who has devoted much time to the consideration of the question of enteric fever, and Dr. Ramond, former house physician of the Paris hospitals, seem to have succeeded in infecting animals with enteric fever. In a first series of animals they sprinkled the food with a virulent culture of the bacilli. Twelve rabbits treated in this way showed mild symptoms of infection. They all recovered in from fifteen to eighteen days. It is necessary, however, to lower the resistance of the animals, which may be done by injecting daily three or four cubic centimeters of blood serum taken from men who have never suffered from enteric fever. Another method consisted in the injection of fifty drops of laudanum into the peritoneal cavity a few minutes before the ingestion of the bacilli. Cultures of the bacilli may not only be mixed with the food, but may be passed directly into the stomach by means of a rubber tube.

Shortly after the administration of a recent culture the animal's temperature would rise to 40° or 41° C., and it would lose its appetite. Its weight would soon fall about 150 to 200 grammes. The temperature, after the



first rise, would remain but a few tenths of a degree above the normal, but on the twelfth day would again suddenly rise to 40° C. and remain high for about fifteen days. During this period not only would the appetite be diminished, but some irregular diarrhea would be present, while the respiration would be slower. No albumen was to be found in the urine.

The animal would lie more or less huddled up, with its eyes half closed and its ears hanging down. In some cases a rapid recovery took place, but in a few others the animal died from peritonitis or typhoid septicemia. In other cases the symptoms were slight, consisting only in some fever, diarrhea, and loss of flesh. At the beginning of the second week a distinct sero-reaction was to be noted, lasting two months after recovery.

Autopsies of the animals deceased revealed pathological alterations similar to those found in enteric fever, namely, congestion and infiltration of Peyer's patches, with slight traces of hemorrhage. Some well defined ulcerations were present; the mesenteric lymphatic glands were found swollen; the spleen was enlarged and dark, and the liver was congested. Broncho-pulmonary and pleural lesions were of frequent occurrence.

Microscopic examination revealed the presence of bacilli in the follicles of the intestine, where they were extremely abundant; more deeply they seemed to tend to break up into granules. Some succeeded in reaching the mesenteric glands, where the sinuses were filled with them, grouped infrequently into masses of twelve to fifteen bacilli, surrounded by amorphous substance.

Drs. Chantemesse and Ramond were led to conclude from these experiments that in enteric fever in animals there occurred first of all a lymphatic stage, corresponding perhaps to the incubatory period. In this stage the bacillus invades the follicles and gets as far as the mesenteric glands. In a second stage, of short duration, general circulatory infection occurs, followed by localization in the spleen and liver—the visceral stage.

It was noted that the infection did not act to any great extent upon the kidneys, a fact due to the disease being less virulent in animals, and to the uncommonness of secondary infections which affect the renal functions much more than does the toxin of enteric fever. Such a condition is seen to a certain extent in children suffering from enteric fever, as they are less exposed than adults to secondary infections.

The Fourth Congress on Tuberculosis was held in Paris from July 27 to August 3. The members of the Congress were taken over the Boucicaut Hospital, the recently opened establishment built thanks to the endowment furnished by Madame Boucicaut, the late proprietress of the Bon Marché. They inspected the wards for tuberculous patients, and Dr. Ribard, one of the physicians of the hospital, explained his treatment for anorexia in tuberculous patients. It consists in applying two kilogrammes of carbonic acid snow to the pit of the stomach or over the liver just before meals. The snow is enclosed in a bag and surrounded by a thick layer of wadding.

The first meeting was held in the great amphitheater of the Faculty of Medicine, at three o'clock in the afternoon of July 27. Dr. Nocard, a veterinary surgeon, who was president of the Congress, spoke at length on the necessity of stringent regulations against bovine tuberculosis, and called attention to the results obtained in Denmark, where tuberculosis had been so prevalent among cattle.

Dr. Petit, secretary to the Congress, spoke of the results achieved since the previous congress. In the public schools some efforts had been made to place spittoons in the halls and stairways, and to prevent pupils from expectorating on the floor. So far declaration of cases of tuberculosis by the physician has not been made obligatory, and it is not likely to be made so, from the fact that such a measure was not advocated in the recent report published by the Academy of Medicine. In some of the hospitals wards specially reserved for tuberculous patients have been opened. The speaker called attention to the societies founded in other countries, the Red Cross in Berlin, and to the aid given them by the Empress Mary of Russia, the Czar Nicholas II, the Kings of Denmark and Sweden. Dr. Petit ended his speech by thanking the members of the Congress for their presence.

Two of the most important communications made to the Congress were a report by Dr. Landouzy, Professor of Therapeutics at the Faculty of Paris, on the treatment of tuberculosis by serums and toxins, and a report on the "Hospitalization of Indigent Tuberculous Patients in Paris," by Dr. Letulle, one of the physicians of the Boucicaut Hospital.

Dr. Letulle began by declaring that it was a fact that tuberculous patients without means were treated in Paris with a well-

nigh complete lack of the hygienic precautions necessary in such cases. He called attention to the fact that the means used to prevent the spread of tuberculosis, namely, isolation and disinfection, were not only capable of resisting its extension, but contributed likewise to arrest its progress in patients already suffering from it. By the installation of special wards for tuberculous patients the treatment could be modified; the quantity of air for each patient was increased; no supplementary beds were allowed; nor the use of brooms or dusters; in brief, the causes of secondary infection were put aside.

In November, 1897, Dr. Letulle reserved two wards, containing in all thirty-five beds, for tuberculous patients. During a period of eight months 125 patients were treated. Thirty-eight deaths occurred, sixty cases grew worse, and twenty-seven cases increased in weight and showed improvement. The patients were weighed every week at a certain hour, and in some cases an increase of from four to ten kilogrammes was noted. Dr. Letulle thought that these encouraging results were due to a treatment based on two principles. The first consisted in rigorous asepsis of the service. This should be more stringent than in surgical wards even, as the patients are more liable to infection. Spittoons were placed everywhere. No ordinary handkerchiefs were allowed; they were replaced by sterilized compresses. The patients were bathed and cleaned before entering the wards. In brief, the only danger left was due to visits from friends and relatives. The second principle of the treatment consisted in good air, rest, and good food.

The windows of the wards were open night and day. These windows are divided into three parts, and the upper part only was left open at night. The patients were kept out-of-doors as much as possible. Two tents have been placed in the garden, containing inclined chairs, and the patients are sent out from half-past five to nine o'clock in the morning, and from half-past five to nine in the evening. When the sun is not too hot, the patients were sent out from 12 M. to 5 in the afternoon.

So far the cure by suralimentation has been rather elementary in the Paris hospitals. The patients were given the first, second or fourth degrees of diet according to their condition, and in certain cases milk, fresh eggs, raw or powdered meat were added. A change

has been brought about at the Boucicaud Hospital, and the patients now have five meals a day. The relatives and friends of the patients are requested to leave off bringing sweets, and a list is furnished them showing what articles of food they may bring.

Dr. Vitaliani recommends a simple and efficacious means of treating blisters caused by badly fitting shoes. The blister should be incised from end to end, and when the serosity has disappeared, a little iodoform should be dusted in by lifting up each flap of the blister. A small quantity of absorbent cotton should be applied and kept in place with some adhesive plaster. The patient can then put on his shoe and continue walking. In less than a day the wound has dried and there is a new layer of epidermis.

#### BERLIN LETTER.

BY JAMES J. WALSH, M.D., PH.D.

Two things were of interest from a therapeutic standpoint in Professor Koch's talk on the spread of the bubonic plague. His thorough confidence in the preventive therapeutics of modern quarantine, now that we know exactly whence to look for the danger, and his description of the portion of the Uganda country in which the plague has been endemic for so long as tradition runs, is worthy of note.

Koch does not think that there is any serious danger now of the plague ever again overrunning civilized countries. The conditions of its contagion are such that with reasonably sanitary surroundings, ordinary quarantine regulations will always be sufficient to protect civilization from invasion. Mesopotamia, Thibet and the Arabian coast just below Mecca were the real plague spots where the disease was known to be endemic; to these are now added the Uganda country on the northern shores of Lake Victoria Nyanza, hitherto unsuspected in this regard, but from which undoubtedly epidemics have come down the Nile to invade Europe. From here doubtless Tripoli received the germs of the fatal epidemic of the early seventies, the origin of which has been hitherto a mystery. If a jealous eye is kept on these regions Koch thinks there need never be fear of another great epidemic.

The part of Central Africa in which the plague is endemic is in the midst of the banana groves of the Uganda country, not far from the shores of Lake Victoria Nyanza.

The people live practically exclusively on bananas. Their huts are in banana groves so thickly overgrown that scarcely a ray of light penetrates and the ground is always damp. The air is overloaded with moisture. The groves are infested with innumerable rats. Here are all the conditions favorable for the development of lower plant life in a luxuriance that may easily change the character of it from harmless to harmful. The presence of the rats gives a preliminary host to still further increase the virulence of the micro-organism. For the plague is a rat disease, not a human disease. These usually intensely resistant animals succumb to it at once. Mere contact communicates it to them, while other animals must be inoculated with it. Men are only secondarily the victims, after the passage of the virus through animals has increased its virulence.

I have heard two authoritative statements recently that seem to show that after the recent period of pathological interest in the gonococcus, that finally placed that eminently disagreeable being on a pinnacle of etiological activity beyond that of most other microbes in the extent and severity of the pathological changes it could induce, the inevitable reaction is setting in. These two statements set it in a much lower plane of virulence than even ordinary pus micro-organisms. Professor Lassar stated that he had never seen an epididymitis occur in a case of gonorrhea that had not been treated. To his mind the complications of gonorrhea that occurred three to five weeks after infection, but especially the epididymitis, were the result of secondary infection. How that secondary infection was acquired was easy to explain. Patients absolutely without an idea of asepsis were furnished with a syringe, for using which they were given no directions as to cleanliness, often not even warned of the danger of uncleanness. Injections were given by patients in all sorts of out-of-the-way places, usually the very opposite of aseptic in character. The syringe and solution for injection were carried around in the pocket, and usually there was no chance to even wash the hands before administering the injection. It is foolish to think that under such circumstances, because the solution is an antiseptic, the patient is free from the danger of secondary infection. Antiseptics as injected into the urethra were always so weak as to scarcely affect micro-organisms, unless allowed to act during long periods, and were usually such as were sup-

posed to have a value because especially inhibitory to the gonococcus.

The other statement was from Professor Gusserow's assistant at the Charité, Dr. Volkmann. In discussing the causes of uterine bleeding, during a discussion at a meeting of the Charité Aerzte, he called attention to the fact, insisted on by Säger, that a gonorrheal oophoritis is often accompanied by menstrual disturbances, the periods becoming more frequent and more blood being lost. Gynecologically he considers this to be of the greatest importance, for infection with the gonococcus practically never leads to peritonitis, and the lesions gradually undergo a process of involution that makes them harmless. If, then, a patient comes with a history of bleedings after the recurrence of symptoms of a gonorrhea and her ovaries be found affected, there will scarcely be question of surgical interference in the case, for as a rule Nature is well able to take care of the patient in the matter.

The Pasteur treatment for rabies was begun in the Institute for Infectious Diseases, Professor Koch's department at the Charité, in the beginning of July. Eight cases were under treatment during the first month. As Professor Brieger (Professor Koch's assistant) says, there was evidently need for the new establishment. He says that the statistics from Russia and from Austria, where national feeling has no weight in the matter, amply justify the claim that the Pasteur treatment is an effective therapeutic method. One thing is now certain, viz., that the treatment is absolutely harmless. As Berlin has been the great stronghold of opposition to the Pasteur treatment, and especially emphatic as to the danger of communicating the disease it was supposed to cure, it would seem that the last word in the chapter of opposition to Pasteur's great discovery has been written. The introduction of the treatment at Berlin will be the signal for each of the German universities to establish a Pasteur institute, and the new century will find the treatment in universal use.

One of the abominations that one does not have persistently forced on his attention over here is the chewing of gum. Professor Ewald, however, recommends it as a therapeutic measure in certain stomach diseases, not because of any supposed minimal pepsin addition, but for its mechanical action in causing a superabundant flow of saliva. In certain nervous states accompanied by an excessive secretion of hydrochloric acid, the

flow of alkaline saliva tends to neutralize the acidity and so do away with a number of symptoms, like continuous urgent hunger, relieved only for a short time by taking food, that occur in gastric hyperchlorhydria.

#### LETTER FROM THE FRONT.

BY EDWARD MARTIN, M.D.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: When, at the beginning of the present war in the latter part of April, the State troops were ordered out, those from Pennsylvania, about eight thousand strong, were sent to Mt. Gretna, a high, well watered region near Harrisburg. The Philadelphia regiments, presumably the least accustomed to stress of weather, moved out on the morning of a cold wet day, the snow which fell early changing to a heavy rain later. Some of them, after an all day railway journey, were compelled to bivouac for the night, neither ground nor tents being assigned to them sufficiently early to allow of shelter being provided. These troops were improperly shod, inadequately clothed, and somewhat irregularly fed; they were taken in part from workshops and from sedentary occupations; they were exposed to many days of cold, almost ceaseless, rain, transforming the camp into a sea of mud; the nights were always cold, frost falling at times. With these conditions obtaining, many not too robust, house-softened men, always with wet feet, generally with wet clothing, always cold at night, given food to which they were not accustomed, the regimental surgeons naturally looked to having their hospitals full of men seriously ill with rheumatic affections, particularly acute articular and muscular rheumatism, and acute congestions from surface chilling, particularly bronchitis, pneumonia, and diarrhea.

To the surprise of every one there was almost no sickness of any kind, far less than I have ever known in any summer encampment. I believe the reasons for this were: (1) The stimulating effect of the excitement incident to the beginning of actual war, and the daily expectation of orders to move; (2) the bracing effect of the fresh mountain air; (3) the coolness of the weather—northern men always stand cold better than heat; (4) the simple diet—there were almost no booths selling ice cream, milk shake, soda water, and fruit, always prolific sources of camp diarrhea. After about two weeks of cold, wet, and discomfort, but generally of excellent

health, a portion of the troops were ordered to Chickamauga, Ga. This also is in a mountainous region, but is hot in the day and dry, absolutely no mountain springs running through it, dusty beyond all experience elsewhere, cools rapidly at night but does not become actually cold, with the deposition of a dew so heavy that as it dropped from the trees upon our tent roofs it sounded as would a beginning rain-storm. The water-supply here was surface water—*i.e.*, was pumped from wells twenty or thirty feet deep. Some ran deeper, but were not true Artesian wells. The food issued was more irregular than ever before, and the water was so inadequate in quantity that there were constant quarrels about the wells. The heat during the day was so intense that one of our men was sun-struck, and nearly every morning and evening drill saw many instances of heat prostration. Moreover, the mixed soft drink and fruit wagon and stand abounded.

Medically our troubles began at Chickamauga. On the night of our arrival the men were compelled to bivouac, the train getting in too late to allow of reaching the camping ground and putting up canvas. Everything exposed to the dew was nearly as wet as it would have been had there been rain. The next morning was close and very hot, and after a light breakfast, mainly of coffee, the regiment was taken in heavy marching order (this means each man carrying about sixty pounds) to the camping ground about two and a half miles away. The route was over a road several inches thick with dust. It was at the end of this march that the case of sunstroke occurred, also a number of cases of heat exhaustion. On the following morning, at sick call, in place of the four or five men who had been coming, with slight injuries or ailments, I found some forty or fifty men. Nearly all of them were suffering from a harassing cough. The physical signs, those of a slight bronchitis, were by no means commensurate with the severity and persistence of the cough; there was little or no fever, no diminution of the appetite, a distressing sore throat, tenderness on swallowing, inconspicuous faucial lesions, soreness and rawness along the line of the trachea, much abdominal soreness (from the incessant cough, which greatly interrupted sleep), and no pulse hurry. This was the type of an epidemic which made no great headway but which yielded not in the slightest to the ordinary sedative treatment. They were given "Brown mixture" alone, or ammonium muriate, pare-

goric, opium, laudanum, codeine sulphate, morphine sulphate, sodium and potassium bromide, Dover's powder, gargles (astringent, antiseptic, and sedative), sprays and inhalations, without the slightest effect. Copaiba and sandalwood were equally inefficacious. The first obvious improvement followed the free use of counter-irritation to the chest, along the line of the trachea, and to the neck. This was accomplished by mustard plaster and tincture of iodine. Finally we struck upon the following formula:

R Terebene,  
Oil of eucalyptus, aa 3 j;  
Syrup of yerba santa, 3 j.

M. S.: One teaspoonful every two or three hours.

The effect was prompt and thoroughly satisfactory; in three days the camp became fairly quiet at night, and by the end of the week there lingered only a very few cases, all rapidly growing better.

Toward the end of our stay in Chickamauga the men began to suffer from diarrhea, usually, but not always, traceable to fruit-eating or taking of large quantities of iced drinks immediately after drill. At Chickamauga the most troublesome illness was undoubtedly a harassing inflammation of the mucous membrane of the throat, larynx, and larger bronchial tubes. This was due to: (1) The dust made by the heavy hauling over the fine park roads; the air was constantly full of it, and it formed an impalpable powder rendering everything filthy. (2) The sudden contrast between the hot days and the cool, wet evenings. Fewer colds were contracted after we insisted on the men putting on their blouses at sunset.

The surface water supply should have given trouble particularly after the ground had been camped on for some weeks, but up to the time of our leaving (the end of May) it had not done so, for but one case of typhoid fever developed. In the beginning of June we were ordered to Tampa, famed even in song as a breeding-place for fever.

The camps were pitched in a sandy soil, were partly shaded by a thin growth of pine, and were in the main near enough to the water to enable the soldiers to bathe regularly. The usual disposition of all waste about a camp, including in this term the feces, of which there will be daily about a half ton to a regiment, is to bury it. Even before the tents are put up and as soon as the location of the camp is definitely determined and the company streets are marked out, there is dug at least twenty yards behind

the line of kitchens a series of trenches ten feet wide and three to four feet deep and twenty feet long, for each company, to receive the feces. These trenches are usually provided with a log or scantling seat and are often partially screened by pine branches or bushes. Similar provision is made for the officers at their end of the camp. Near each cook-shed, one to a company, a hole is dug about four feet square and the same depth; this is to receive the kitchen refuse, at least all that is not burned—no rubbish of any kind is allowed about the camp or its environs. The pits for refuse of all kinds are covered at least twice a day. In my own camp there was provided a shovel at each pit, and the moment anything was dropped in it was covered with a shovelful of sand; this entirely did away with the disagreeable odor which usually characterizes garbage holes, and materially lessened their danger as breeders of flies. When the pits are covered to within two feet of the surface they are piled up level and new ones are dug. It is evident that when the surface water from or near the camp is not used for drinking purposes this provides an easy, excellent and safe means for getting rid of the feces and garbage. In low-lying regions the water is often found within two feet of the surface; the pit system then becomes troublesome and dangerous, since new trenches must be dug daily and the layer of earth overlying the excrementitious materials is not sufficiently thick to prevent the escape of offensive gases.

In large camps the water is commonly supplied by pipes bringing it from a distance and running somewhere near the line of company kitchens. This was the case at Tampa. The Plant system hauled part of their water, the larger part; the rest was piped to the soldiers from a spring. It contained much iron, turning a tumbler yellow on standing, but after boiling and filtration it was good. The evil taste and appearance of the water, however, induced many of the soldiers to seek what they deemed a better and safer supply from some of the many surface wells. This they did at first in spite of orders, and to their ultimate disadvantage.

The conditions confronting us at Tampa were: (1) A tropical climate, but with the water so near that the nights were nearly always breezy and cool. The dewfall was slight. (2) A sandy soil with the water so near the surface that in some locations the trenches could not be dug more than two feet deep. (3) The proximity of large fresh-

water ponds. (4) An adequate and healthful water-supply, but so unpleasing to the eye and taste that there was a tendency on the part of the privates to prefer the better looking water from shallow wells. (5) A city in which there is always some typhoid and malarial fever. (6) Drinks of all kinds fairly accessible, fruit abundant, cheap, and bad.

The causes of disability we could fairly expect to be most prominent were heat exhaustion and sunstroke during the acclimating drills, malarial fever, diarrhea and dysentery, later typhoid fever.

With the exception of heat exhaustion, of which we had but few cases, and sunstroke, of which we had none, our expectations were fairly fulfilled. After the first week, when every one was buoyed up by the hope of going immediately aboard transports, there was a rapid increase in the number of men reporting for relief from duty. In over ninety per cent. the affection was diarrhea, sometimes painless, often attended by severe, occasionally by agonizing, cramps, usually afebrile, accompanied only exceptionally by nausea and vomiting, attended by great weakness, especially when there was accompanying fever, yielding rather slowly to treatment unless this was accompanied by rest in bed. In a command of six hundred men there would be sixty of a morning presenting these symptoms. A smaller number would give a history of violent straining and the passage of blood-stained mucus.

The treatment which gave the best results in these cases was: (1) Entire abstinence from everything but water or tea for one, two or three days; (2) rest in quarters or in hospital, the latter always when the affection persisted more than two days; (3) the wearing of a belly-band, preceded by a large mustard plaster; (4) the immediate administration in cases of moderate pain of tincture of ginger half a drachm, subnitrate of bismuth half a drachm; when the pain was severe chlor-anodyne or chlorodyne fifteen minims, when it was agonizing a hypodermic injection of a quarter of a grain of morphine. In all cases salol was given commonly associated with oil of peppermint and bismuth, small doses being repeated hourly; commonly we gave four grains of salol and thirty grains of bismuth subnitrate every two or three hours, often combining the bismuth with ginger. When there was much nausea and vomiting we gave calomel and soda, a sixth of a grain of the former and two grains of the latter,

hourly, for six doses. In the very beginning of a severe attack we had excellent results from chlor-anodyne or chlorodyne fifteen minims and castor oil one ounce. The regular army prescription, camphor and opium pills, we used but little and always in conjunction with intestinal antiseptics, holding that the diarrhea was usually eliminative and that the first effect to be produced was to disinfect the fermenting gastric and intestinal contents. We also counseled the men to vomit the moment they felt the beginning of an acute indigestion.

A part of the diarrhea we could directly trace to an inordinate consumption of green coffee, a part to a not sufficiently varied diet, but most of it to the fruit and iced drink stands which sprang up like mushrooms about the camp. The errors in diet were in the main corrected, the fruit stands included, when there resulted a marked and immediate diminution in the number of cases of acute diarrhea and gastro-enteritis. Later in the summer, after the troops had been in Tampa for upwards of a month and the rainy season had fairly started, the malarial and typhoid fevers became unpleasantly prominent. There was comparatively little of the typical malarial attacks characterized by periodically recurring chill, fever, and sweat, with an intervening afebrile period. The fever was remittent in type, was accompanied by marked gastro-enteric disturbances, often by an obstinate diarrhea, was at times intractable to quinine, and in a few instances resulted fatally. The usual treatment was pursued—*i.e.*, the use of calomel to disinfect and clean the gastro-intestinal tract, followed by quinine. The fever yielded, but on returning the soldiers to duty would recur. The typhoid fever was severe in type. It was certainly contracted from well-water, either obtained in camp because of its supposed purity, or given to the men by some of the many vendors of soft drinks. It could perhaps have been prevented. The means naturally suggested in the light of this experience are:

1. The further education of the troops through their company officers as to the importance of drinking only boiled water.

2. Careful attention on the part of the company officer to the securing of means by which the water for drinking may be regularly boiled and stored, and daily inspection of the reservoirs by the medical officer made.

3. Either the abolition of all soft drink stands or a daily medical inspection of them

so that only boiled water and artificial ice may be used.

4. The constant guarding of all wells, springs or other sources of water-supply than those provided for the camp and known to be pure, as a further means of preventing typhoid fever or at least of preventing the gastro-enteric congestion which seems to favor its development; the unguarded use of ice water or of iced drinks of any kind should be forbidden, except for storing purposes and in cases of sickness. The troops would be better without ice. The large quantities of very cold water taken when the men come in hot from drill were responsible for many cases of acute diarrhea.

It is probable that could the troops be trained to drink only boiled water, not only would typhoid fever disappear from among them, but malarial fever would become much less frequent. With the advent of Artesian drinking-water through the South the severe forms of malaria previously prevalent are disappearing, thus showing that the malarial poison is often taken into the system with the drinking-water.

One of the stirring scenes of the camp was the coming in of the *Cherokee* with between three and four hundred of the soldiers who had been wounded in the fighting about Santiago. None died on the voyage over and very few afterward. The great majority recovered promptly and without suppuration. The Mauser bullet, about thirty caliber, is an exceedingly merciful one. The wounds made by it I saw when about nine days old; they were small, mostly healed and slightly scabbed punctures looking much like a scratched and scabbed mosquito bite. The wound of exit was not in the least different from the wound of entrance; there were no evidences of that explosive force which the modern projectile is supposed to exhibit at short and long range, and which our own Kräg-Jorgensen rifle bullet certainly does exhibit in experiments on the cadaver. Some men were shot at forty yards, some at twelve hundred; the wounds looked the same. In a number of instances the balls had remained in the tissues and had been extracted. Two patients whom I saw were shot directly through the lung. One spat blood for a day, but he was also shot at the same time through the neck and the floor of the mouth by the same ball, he says; the other had no bloody expectoration. These men were walking about with healed wounds. All the wounded seemed strong and cheerful. There was a striking absence of the hospital

facies and the feeble bearing to which we are accustomed in patients who are hurt and who are taken to our city hospitals. From surgeons on the field who had dressed hundreds of the wounded I learned: (1) There was almost no evidence of an explosive action of the Mauser bullet; it generally made a clean-drilled hole, going through all tissues, even bone, without shattering it. (2) When it hit a man it usually stopped him; this was not always the case. (3) There were some cases shot through the head and some shot through the belly which recovered. (4) The killed were hit in a vital part, the brain or head, or a great blood-vessel; many were torn by shrapnel or the missiles from rapid-fire guns. The proportion of wounded men to killed was very large. (5) There was very little hemorrhage either primary or secondary. (6) There was almost no operating other than that having for its object the cleansing and dressing of wounds. There were not more than a dozen amputations in all. (7) There was very little systemic shock from the Mauser bullet wounds. When a first-aid dressing was promptly applied the healing was usually without suppuration.

The value of this first-aid dressing of sterile gauze, one of which was carried by every soldier, was in part demonstrated by two suppurating cases, neither of which had had it applied. Though experimentally it cannot be shown that a bullet track is not sterile, practical experience proves that providing further infection can be kept out the track is likely to heal by first intention; the speedy way in which the wounds treated by the first-aid packets provided by the Army healed should do much to strengthen the confidence in them, which has been gradually weakened as a result of laboratory experiment and theoretical objections. A few of the wounds were inflicted by the Remington 45 brass-jacketed bullets used by the guerillas; these formed large suppurating tracks very different from that which marked the course of the Mauser bullets.

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#### UNTOWARD EFFECTS OF CINCHONIDINE SALICYLATE.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Being unable in any of the books and journals at my disposal to find any mention of the untoward effects of cinchonidine salicylate, I think the following case that occurred in my practise recently is worth reporting:

Mrs. L. D. H., aged fifty, retired nurse, was suffering from an attack of neuritis which affected the median nerve of the right arm. Owing to the fact that her stomach had been most irritable for several years, and that the most simple article of food often upset it for days at a time, I tried to relieve the neuritis by external means rather than take the chances of upsetting the stomach, which under treatment was behaving fairly well.

No effect being had from the applications, I determined to use cinchonidine salicylate. Accordingly she was ordered ten grains of the drug three times a day. June 19, at 10.30 A.M., she took the first powder. An hour afterward she began to "feel queer," her head buzzed, and some nausea was present. As she felt much better after dinner she took another powder (at 2.30). About one hour later her head began to ache, vertigo became marked, the eyes watered profusely, a most severe pain affecting the face, jaw and limbs set in, and there was slight blurring of the vision. The patient felt very weak and relaxed. The bladder soon became a seat for the pains; urination became frequent, only a small amount of clear, almost colorless urine being voided each time; there was also a constant sense of fulness in the bladder.

At four o'clock the pains were so severe that she went to bed, and a short time afterward the face became so much swollen that she could not open her eyes. Nausea persisted until midnight, when she slept for nearly an hour. About noon the following day the pain in the head and face ceased, and the swelling had gone down somewhat. The bladder trouble continued, however, and on June 29 there was still some discomfort in that organ, but urination was less frequent.

One week from the time the powders were taken the swelling had disappeared, and the vision was as good as ever. As I did not see the patient during the acute attack I am unable to make any report as to the condition of the heart and pulse at that time.

Yours truly,

HENRY J. WALCOTT, JR., M.D.

BARRE, MASSACHUSETTS.

#### *APOCYNUM CANNABINUM.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I wish to call your attention to a further point or two on *Apocynum Cannabinum*, concerning which you publish a letter from T. S. Dabney, M.D., in your June issue, re-

ferring to the same subject in the April issue. Dr. Dabney seems desirous to place the prior use of this remedy where it belongs, so I wish to give the wheel another turn backward.

Dr. John M. Scudder, of Cincinnati, Ohio, writing in March, 1865, of this plant, says: "In atonic or passive dropsy it is the best remedy I have ever employed—in fact, so great has been the success attending its use, that I have almost looked upon it as a specific. It makes but little difference where the effusion is, whether it is edema, anasarca, ascites, or hydrothorax, it seems to reach the lesion upon which the effusion depends, checking it, stimulating absorption, and removing the water by way of the kidneys. I have successfully treated all these forms of dropsy with it.

"In the treatment of hydrocephalus we have abundant evidence that it is about the only remedy upon which we can depend. A considerable number of cases are reported in which the disease was fully developed, and in which its use was followed by entire removal of the dropsical deposit and restoration to health. I have used it in acute hydrocephalus with marked advantage; it checks irritation of the brain, increases the secretion of the urine, and checks diarrhea.

"It is especially useful in disease of the spinal cord, in which there is irritation of the excito-motory system. In children we occasionally see a case in which there is marked spinal lesion, with a doughy, pallid skin, puffiness of the eyelids and other parts, and occasionally marked edema. In these cases the apocynum exerts a decided curative influence; the improvement being speedy, and continuing to complete restoration of health."

Dr. Scudder used from one drachm to one ounce of a good tincture to four ounces of water, and gave a teaspoonful of the mixture at a dose.

In a work on materia medica, written by the same author, and published in 1870, he says he has used *Apocynum Cannabinum* in the above named conditions during the past eighteen years, having learned its use from his teachers and predecessors, who ordinarily made a decoction of it.

My preceptor used it before and at the time I was studying in his office, and I myself have now used it nearly twenty-five years, and have found it an extremely valuable remedy when exhibited in proper cases.

Very truly yours,

C. L. GREGORY, M.D.

YREKA, CALIFORNIA.



# —THE— Therapeutic Gazette.

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## Original Communications.

### THE RELIEF OF SYMPTOMS IN PULMONARY DISEASES BY DIRECT MEDICATION.

BY JOHN A. THOMPSON, M.D.,  
Cincinnati, Ohio.

General anesthesia hourly gives proof of the rapid and profound effect on the human body of drugs administered by inhalation. With this hourly demonstration of the effectiveness of the method, it is strange that physicians have used the pulmonary tract so little for the exhibition of remedies. The reason for this neglect of a valuable ther-

apeutic measure is, probably, that the instruments employed have not been effective. Few drugs are volatile enough to be active when inhaled. The few that are sufficiently volatile are too transient in their effects to be of much value except in emergencies. The attempt to carry less volatile remedies directly into the lungs by means of inhalers, nebulizers, or sprays, has failed through the defects of the apparatus. By none of these methods can a sufficient quantity of the drug be carried into the lungs to produce any marked effect. It would seem, *a priori*, that success in this line of treatment was to be obtained by introducing into the bronchi drugs that do not irritate and that vaporize

slowly at the temperature of the body. Owing to the failure of nebulizers and inhalers, a number of laryngologists have been experimenting with the direct injection of remedies into the trachea.

There are few technical difficulties in this method. With the parts illuminated as in an ordinary application of medicines to the larynx, the curved tip of a laryngeal syringe is carried back over the glottis. While the patient takes a slow, deep inspiration, the remedy is injected between the vocal cords into the trachea. In the earlier treatments it is sometimes advisable to anesthetize the larynx with cocaine. Later, when the patient recovers from the nervous apprehension that is so often excited by manipulation about the throat, cocainization of the larynx is neither necessary nor advisable. Where the patient has sufficient self-control to breathe slowly, deeply and regularly with the laryngeal mirror in position, it is easy to inject solutions into the trachea without passing the tip of the syringe below the glottis. This latter method is not advisable in ordinary treatments. There is apt to be some injury to the parts in introducing the syringe between the cords, or in withdrawing it. Where cocaine is not employed, a reflex spasm is excited by the contact of the syringe that makes the treatment disagreeable and sometimes painful to the patient. This is not necessary if physician and patient cooperate, the latter breathing as directed and the former regulating his movements by those of the larynx.

The medicines to be used in tracheal injections are principally those which are slowly given off as vapor at the temperature of the body. Menthol and camphor take front rank on account of their action lessening congestion and producing a degree of local anesthesia. Thrown directly into the bronchi, they have a positive curative effect on inflammations either acute or chronic. By their anesthetic action they control cough longer and more efficiently than morphine will when given hypodermically. Chloral and guaiacol are especially efficient as antiseptics in suppurative cases. Weak solutions of chlorphenol have been exceedingly valuable in tubercular ulcerations. There are theoretical reasons for advising the use of oil of cloves, oil of cinnamon, and their congeners, but the author has had no experience with them. At the Cincinnati Branch Hospital for Consumptives, Dr. Lyle is using iodoform in oil. His idea is that the iodo-

form may be taken into the tissues as carbon is in anthracosis, and have an effect in preventing the extension of tubercular infiltration. It is too soon to say what the result will be. The vehicle employed for the solution or suspension of remedies must be some form of oil. The experiments of Downie have shown that aqueous or alcoholic solutions are too irritating to be used with safety. One of the light petroleum oils is generally used, but a pure olive oil can be substituted and theoretically is better than a mineral oil.

The greatest advantage to be gained by direct medication of the lungs is that we secure the local effect of the medicine without its acting on or through other organs. In bronchial inflammation we can lessen the congestion of the mucosa as certainly by this method as we can relieve congestion of the nasal membrane by sprays. The anesthetic action of the drugs employed, on the terminal filaments of the irritated nerves, controls cough more effectively than can be done in any other way. Where in chronic diseases there are septic or decomposing secretions in bronchi or cavities, the antiseptic action of medicines can be secured only by their direct application to the affected areas. If given by the stomach they are either decomposed or so diluted when they reach the parts involved that they are worthless. In bronchiectatic cavities, the effect of the direct injection of guaiacol is a revelation to those familiar only with older methods of treatment. The odor and the absorption of septic matter can be controlled in a few days in cases where internal medication has for years failed to accomplish this result. In tubercular cavities with secondary infection by germs of suppuration, local antiseptics lessens suppuration, fever, and night sweats.

Another advantage of the injection method in diseases of the lungs is that medicines are not altered in the digestive tract. We know little of the changes, even in familiar remedies, after their absorption from the stomach. We do not, in many instances, know their form when they reach the lungs. We know their effect only empirically. Our therapeutic knowledge becomes much more certain and we are better able to suit the remedy to the disease when we can apply it directly to the involved tissues.

One of the best reasons for using the direct injection method in pulmonary diseases is that medicines given in this way do not impair nutrition. Most of our expectorants have a deleterious action on the digestive

tract. In administering them we are choosing the lesser of two evils. In advanced cases of phthisis it is often a debatable question whether the strength of the patient will be most impaired by allowing the cough to continue or by administering narcotics to quiet the cough and allow the patient to sleep, but at the same time interfere with digestion and nutrition. With a proper choice of remedies by tracheal injection it is possible to relieve the cough more promptly than can be done by internal medication. The remedies administered by the lungs do not in any way interfere with the action of the digestive tract. On the contrary, the stimulant action of menthol and camphor seems to have a beneficial effect on the nutritive processes. The unpleasant and harmful secondary effects of narcotics can be entirely avoided by substituting tracheal injections for the classical cough mixtures.

In the Cincinnati Branch Hospital for Consumptives, cough mixtures containing opiates are not given to any patient strong enough to come to the treatment room for a tracheal injection. Cases of beginning tuberculosis where the cough is excessive, causing the patient to vomit foods and to lose sleep, are most favorable for this method. An injection of menthol and guaiacol in the evening will ordinarily allow the patient to eat a full dinner and get from six to eight hours' sleep before the paroxysms of cough again return. In long-standing cases of tuberculosis with secondary suppuration, the septic fever and the night sweats yield more readily to tracheal medication than to medicines administered by the stomach.

In the first stage of acute bronchitis where the membrane is intensely congested and dry, injections are not indicated. At this time they are painful and irritating. After the stage of secretion has been reached, the cough is relieved and convalescence very much hastened by the use of weak mixtures of menthol and camphor injected daily. In chronic bronchitis direct medication gives ideal results. In asthmatic attacks injections of large quantities of menthol solution will frequently relieve all symptoms for six or eight hours. The accompanying bronchitis is cured by the same treatment and the duration of the attack very much shortened. In pulmonary emphysema the chronic bronchitis which accompanies this condition can be cured and the paroxysms of cough and dyspnea very much lessened by properly selected remedies injected into the trachea.

In pulmonary syphilis with breaking down of gummatous deposits, the cavities can be cleansed and disinfected and healing promoted by tracheal injections in cases where constitutional medication has been thoroughly tried and has hopelessly failed.

The objections made to tracheal injections are that excessive cough is induced by the injection. This is a theoretical objection and is not borne out by the experience of those who have used this method for years. In a case not acutely inflamed at the time of injection, and if the solution is not too strong, there will be very little cough caused by the injection of from one to four drachms of the solution. It is only occasionally that any pain is caused by the injection. This can be avoided by careful laryngoscopic examination, determining the degree of inflammation in the tracheal mucosa before the injection is given, and regulating the strength of the remedy according to the indications.

The London *Lancet* of September 6, 1897, in an editorial review of an article of mine published in the *Journal of the American Medical Association* of June 26, 1897, speaks favorably of the method, but claims that it would be of no value in tuberculosis because the remedies will not reach the tubercular lesion. If this were a valid objection it would apply also to all remedies administered by the mouth. There is little blood-supply to the mass of tubercular infiltration, so that the chance of any remedy absorbed from the stomach acting favorably on the tubercular process through the blood is decidedly small. It is not claimed that tuberculosis itself can be arrested by tracheal injections, but many of the symptoms induced by the tubercular infiltration can be controlled by this method, without interfering with the nutrition of the patient, in a manner wholly unknown to those who use only the esophageal route for the introduction of remedies.

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#### USE OF THE CURETTE.

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BY MORDACAI PRICE, M.D.,  
Philadelphia, Pa.

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There is probably no instrument now in use by the medical profession that has been so extensively and badly misused as the curette. It is used for the mildest uterine catarrh as well as for the most desperate hemorrhage in fibroid tumors—there is no mild, severe or intermediate condition to which the curette is not applied. There is

no condition of the pelvic organs so serious as to bar its use in the estimation of many in the profession.

The promiscuous and indiscriminate use of the curette has been the cause of more deaths than probably any other factor in gynecological surgery. Its strongest advocates are those who desire to be known in the community as operators—they are without the courage and experience to make them safe surgeons, yet they desire the reputation and large fees for doing something that should not be done. There is no operation in gynecological surgery that requires more knowledge of pathological conditions and a greater experience in the treatment of the diseases of women. To claim that any novice can select the proper cases for and successfully perform these operations is to deny the experience of the ablest men who have given this subject the most careful study.

Take any experienced pelvic surgeon, and with scarcely an exception he will speak of the contraindications to this operation, and urge the risks rather than the benefits of operative interference with the curette where there is involvement of the appendages or any intrapelvic inflammation.

How many men can decide as to the wisdom of this operation in any given case to their own satisfaction or the safety of the patient? In my own experience of thirty years, fifteen of which have been largely devoted to the treatment of diseases peculiar to women, I have found far more damage done in the use of this instrument than good. In fact, in my experience I have found forcible dilatation and curettement to be the direct cause of more abdominal sections for the removal of appendages than any other. The instrument should only be used after examination by and consultation with the most experienced men. The use of the instrument should only be at the suggestion of the most experienced and enlightened judgment.

It is common in inflammatory pelvic trouble to have a history like this: slight pain in the back with discharge from the vagina, sterile, anemic, nervous, and the consequent anxiety of the family. Then follows the history of treatment, which can be briefly summarized: The attending physician states that he has done all he can to cure leucorrhea and nervous symptoms. He then etherizes, dilates the cervix, and cures the womb; this he is always proud to claim he

did "thoroughly." She got no better—on the contrary all her symptoms became aggravated, with the additional symptoms of pain when walking and on defecation. He again curetted the womb, and from that time on her condition continued to grow worse—marked by chilly sensations and pelvic pain. The sequel of the treatment is the creation of a condition necessitating the castration of the woman.

It is grafting the consequences of an operation on an organ that had already reached the verge of all it could bear, and rough handling or mutilation, such as curetting, could only result in disaster. I will not occupy time in giving the conditions laid down for treatment by the curette, but confine myself to speaking only of those in which in my own experience I have found the curette of use. In endometritis it may be at very long intervals, in the practise of a very busy gynecologist, of use. I have never had to curette a half dozen cases of endometritis.

In fungoid growths of the womb, small or large polypus, and also in the fungoid forms of supposed malignant disease, where there is great loss of blood and the patient will not submit to extirpation, the curette is of great benefit.

I have seen marvelous results from thorough curetting and drainage. In many of these cases they lived on for years without symptoms of trouble. I will refer to a case in point, one in the practise of Dr. Shearer, of Sinking Springs, Pa. The case is one of a lady some forty years of age, a large fleshy woman. She began bleeding months before curettement, and at times there was very severe flooding. At the time I saw her, now over a year, the womb filled the entire pelvis—the mouth of the womb opened sufficiently to admit of a large-size sharp curette. She would not submit to a radical operation, so we decided to clean out the uterus. She was etherized, and the internal and external parts were thoroughly cleansed. With the first stroke of the curette large lumps of gelatinous material, brain-like in appearance, began to flow out—about half a pint of this material was rapidly removed, when the loss of blood was so tremendous that a yard of bichloride cheese-cloth was firmly packed into the womb, as the hemorrhage seemed in a fair way to prove fatal. In a few moments this was removed, when every vestige that could be found of the supposed cancerous material was curetted away and the womb again packed with gauze; a vaginal tampon

was also used, and the patient put to bed. It is now over a year since the operation was done, and Dr. Shearer informs me that she continues to improve and has had no return of her old symptoms.

In abortion, miscarriage, or after labor the curette has no place except in the grossly neglected cases where the woman has been allowed to go for weeks before the membranes and the placenta or parts of the placenta have been removed. All these cases should be treated promptly as soon as it is determined that the woman is aborting and the womb not able to throw off its contents. She should be thoroughly etherized, the hand introduced into the vagina, the finger or fingers into the womb, and every part of the membrane, placenta and clot removed. The fingers should be used; by sense of touch you can be absolutely sure that your operation is complete, while with the curette you may scratch and scrape and wound portions of the endometrium, thus opening new avenues for sepsis, and often the very part that should be removed is left.

I recall a recent case in which a physician curetted the uterus. A short time after he left the woman suffered from hemorrhage, and the family not being able to get the man who had performed the operation I was called, and when I reached the house the nurses showed me a three-months-old fetus that had just been passed. If a man could miss a three-months' fetus with the curette, might he not also miss some other things? With the fingers such an accident could not occur.

In long neglected cases the curette probably would require less violence than to attempt the removal of decomposing membranes and placenta by the fingers. I rarely see cases so neglected. In ninety-nine per cent. of the cases in which the curette is recommended or used I am satisfied the finger is the only safe instrument to use, but neither finger nor curette at any time without ether—an operation without ether is rarely satisfactory. The curette is of no use in ulcerative cancer, except it be used in connection with the cautery, where it is found to be a great benefit, in many instances relieving the patient for many months from the most distressing symptoms and giving comparative comfort.

In fibroid disease and myoma it is a useless and at times a dangerous procedure. You may take one hundred tumors removed by hysterotomy and open the uterine canal,

and you can wipe its lining clean with a cambric handkerchief, showing clearly that an instrument like the curette is not required. Many of these cases are tremendous bleeders. In doing these operations very few instruments are needed: a tooth forceps to steady the womb, a Sims speculum, and three sizes of curettes—the largest should be used without forcible dilatation.

It is understood that absolute cleanliness must be used both outside and inside the field of operation; if discharges are unhealthy, some antiseptic solution should be used.

Some advocate the shaving of the parts. If any one advocating this practise will first experiment with shaving his own private parts, after two weeks of the growth of the heavy stubble he will discontinue the horrible punishment of shaving in his operations. After cleansing the parts it is easy enough to cover them up with wet gauze during the operation.

Not a few men put forward the claim that they have never heard of bad results from the use of the curette. I have seen great numbers of them, and have offered a number of times when reporting such cases to give the name of the surgeon; the society declined to receive the necessary data to prove bad results, this possibly upon the ground that it involved the personal naming of some of the chief advocates of the procedure. Very many men do the operation because they think it is one they can do successfully; if the patient does not die the operation is reported as a success, no matter how aggravated the patient's condition may be. The little good that the curette has done in the cases where it is clearly indicated cannot begin to compensate for the terrible consequences of its abuse. We can only speak with any weight of authority when we speak from our own clinical experience and direct professional observation of the use of the curette. Statistics, as in other lines of surgical procedure, give us no reliable data upon which to base opinion. Every man puts the best face upon his report of cases. That this line of dealing with vital questions tends to the better enlightenment of the profession is questionable.

We get better lessons for our guidance from frank statements of facts as they occur in our experience than from reports of brilliant and uninterrupted successes, however encouraging they may be as to possibilities. From our mistakes and the recognized

errors of our procedures we gain lessons of safer guidance than many taught by our textbooks.

There is nothing in which our speech is so stammering as in admitting our mistakes. The rule should be: As little interference as practicable, and certainly no rough handling or blind cutting. If we are bothered with the number or weight of our instruments let us leave the curette at home.

*A STUDY OF THE DIAGNOSIS, ETIOLOGY  
AND TREATMENT OF TABES DORSALIS,  
WITH SPECIAL REFERENCE TO PRE-  
COCIOUS LOCOMOTOR ATAXIA  
AND THE ARGYLL-ROBERTSON  
SYMPTOM.\**

BY F. SAVARY PEARCE, M.D.,  
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Physician to the Out-patient Department  
of St. Agnes Hospital.

In a study of 194 cases of locomotor ataxia I have noticed a number of odd relations of pupil affections, both as to time of appearance of ataxia and of irregularity of this sign. For this reason the writer began a research upon this subject. The notes from which this tabulation was made were so well taken in the majority of instances that jotting down interesting data from time to time made the study finally broader in its scope than was intended at the outset of the research.

It is with the kind permission of Drs. S. Weir Mitchell, Wharton Sinkler and Morris J. Lewis that I have been permitted to collate all the cases at the Orthopædic Hospital and Infirmary for Nervous Diseases reporting at the clinics up to date (many of whom received from time to time house treatment in addition). Some have been included in the paper on "Tendon Jerk and Muscle Jerk in Disease," by S. Weir Mitchell and Morris J. Lewis (*American Journal of the Medical Sciences*, N. S., vol. xcii, 363). The eye examinations were in most instances made or confirmed by Drs. de Schweinitz and A. G. Thomson. Dr. Chas. A. Oliver has also kindly placed notes of twenty-eight cases of tabes examined by him, taken from a collection of eighty-seven cases which this gentleman is compiling for a monograph upon the eye in locomotor ataxia. These latter are private cases and records of cases admitted to the Philadelphia Hospital nervous wards during 1895, 1896, 1897, and 1898.

*History.*—This disease has been known in a vague way since the time of Hippocrates, and more exactly since Romberg's description.†

*Definition.*—Tabes, tabes dorsalis, locomotor ataxia (Duchenne), or posterior sclerosis, is a degenerative disease of the posterior columns of the spinal cord or the peripheral sensory nerves, or both, and is manifested by considerable incoordination, Argyll-Robertson pupils, peculiar pains, and defective sensibility. There have been given varying significances by different observers to each. The name tabes dorsalis is to be preferred (as meaning wasting of the back, by the older observers, but as now histologically understood, a sclerosis of the posterior columns of the cord), on account of the fact also that incoordination may be absent in the incipency of the disease, and further that incoordination is not always found in the legs primarily, as has been reported by S. Weir Mitchell and others. Indeed, in the rarest instances incoordination is a meagre symptom of this system sclerosis.

*Etiology.*—Erb and Faurnier lay great stress upon the syphilitic origin of tabes, and to this acquired dyscrasia undoubtedly the majority of cases can be placed (perhaps eighty per cent.). This must be due to specific spinal anemia, or to the syphilitic toxin poisoning the centers. Remembering, however, that when syphilis is the etiological factor, tabes is a remote consequence—a grandparent of the disorder (Mitchell)—one cannot hope to cure, or even more than stay the progress of the disease, even when known to be of specific origin.

Apparently mild syphilis seems more apt to produce locomotor ataxia, but we believe this is really not true, but rather that it is due to a determination of the specific disease to the central cord neurons; and hence, the laity statements of the disease "going in" being a bad omen really seems to have some foundation in fact.

Trauma, exposure to cold and wet, overwork and mental strain, are potent causes which should be given greater weight, as shown in our cases. Hereditary nerve disease does not seem to count much in causation. It takes some extraneous agent to induce this degeneration in most cases.

I am more inclined to think the immediate cause of the sclerosis is due in slow

\* Read before the State Medical Society of Pennsylvania, May 17, 1898.

† *Lehr. der Nerven Krankh.*, Berlin, 1851, p. 185; Sauvage's Classics, xi, 1.

forming cases, as said, to spinal anemia, the proportionately smaller vessels known to be in the posterior cord being affected by endarteritis, than that it is due to micro-organismal infection, as well as from the fact that hardening of the arteries (arteriosclerosis) begins in early middle life, the time for developing tabes. This theory is also substantiated by the fact that anterior poliomyelitis is an acute disease occurring in the young, and is situated in the anterior horns of the cord, where the vessels are proportionately larger. Also as infantile palsy most frequently develops in summer, as proven by Sinkler's statistics, very certainly it must be due to the micro-organisms' ready entrance into the anterior horns, for the anatomical reason given, and from the further fact that bacterial infection is more common in the heated season, when, too, the blood-vessels of entrance of the poison must be dilated *ad maximum*. We know more of this since the discovery by J. K. Mitchell that blood-corpuscles per cubic centimeter are increased enormously with varying causes (as massage), or no doubt with thermic conditions, or in varying barometric pressure and at different altitudes, in proof of which the writer has some interesting surface temperature records.

Therefore, as to posterior sclerosis, repeated congestions, either from cold or wet, or as would typically take place in malarial "chills," would cause congestion, subacute inflammation, occlusion of the smaller posterior column vessels, and the sclerotic anemia result.

The micro-organisms of well defined infectious diseases are not known to be causative of tabes dorsalis. Malarial poisoning, however, to my mind, must be more frequently a remote cause of tabes, producing the afore-said conditions—spinal congestion, endarteritis—sequent anemia and sclerosis. To the toxin poison of the plasmodium we might also suspect a potent etiological factor for such sclerosis in malarial cachexia.

The accepted so-called easy immunity of the human body to these protozoa in the light of this may really be a mistaken conclusion. As with syphilis, it no doubt may start the same process of cord-congestion—endarteritis, anemia, sclerosis of the posterior columns. Rheumatism may act in the same way. Our tables show a sufficient number of cases of tabes following exposure to confirm this view. The trite saying of H. C. Wood in his lectures at the University, "Gentlemen,

when you have a difficult case of aberrant form, look to the trio of diseases—malaria, syphilis, or to rheumatism," can well apply to the etiology of many cases of tabes.

*Symptomatology.*—A syndrome in semeiology with cardinal points obtained in most of our cases—the incoordinate gait, fulgurant pains, the Argyll-Robertson pupil—but careful observation proves that this status is by no means as frequent as supposed. Then the stages—preataxic, ataxic, paralytic—are such relative terms as to be only a help in determining this from other simulating affections.

Undoubtedly in the present state of our knowledge, when we are able to diagnose tabes with difficulty, or ever so easily (from the correlated symptoms), the process must be even then histologically well advanced. It is with the idea of helping in early *diagnosis*, and therefore to most effective *treatment*, that I shall give some aberrant symptoms noted in the preataxic stage. According to Raymond, the better recognized incipient forms are: (1) the eye type, amaurotic; (2) the painful; (3) the gastric; (4) the articular type (arthropathies). Manifestly this relation depends upon the part of the nervous system first involved. Beyond this, or later in the course, coordination may be much delayed—*e. g.*, in the legs, where the disease is progressing higher up than the more usual thoraco-lumbar region.

Dr. A. G. Thomson and the writer have frequently observed together the aberrant forms at the Infirmary for Nervous Diseases, and have noted more especially two conditions, viz., where the history not infrequently is obtained that the eye symptoms long antedate the spinal, or *vice versa*. I feel sure the more careful attention as to this in the observation of our cases will be of great value in diagnosis, more in prognosis, and most in treatment. I have also felt that precocious cases, more constantly than the usual later developing forms, do not so often present the Argyll-Robertson sign, but do the Romberg symptom proportionately greater, as though the peripheral neurons were more affected in young persons and by wider spread lesions for the anatomico-physiological reason of vascular resiliency given. The Reber and Wilmarth theory\* of the explanation of the Argyll-Robertson pupil, as due to circulatory disturbance from occlusion of arteries in the

\*Transactions Medical Society of Pennsylvania, 1896, vol. xxx.

finer vessels between the optic and oculo-motor centers seems plausible (likewise does an early occlusion of these fine vessels, together with the important factor of the length of the reflex arc, explain the early absence of knee-jerk); and this, I maintain, is the reason for less frequent Argyll-Robertson phenomenon in young persons. These more resilient vessels are not so quickly occluded from carrying nutriment to the eye centers.

Sudden onset of tabes is likewise less frequently associated with the Argyll-Robertson pupil, as though the cord were earlier affected than the oculo-motor center. I reported such a case before this society in 1896.\* When the pupil is involved in precocious cases, those we have observed have been more of inequality and of iridoplegia, the pupil being generally in myosis apparently due to irritation of the third nerves. Such a case of our series is typified in A. G., aged twenty-two, deaf from birth; no syphilis; first attacked with eye symptoms at nineteen, followed by meningo-myelitis, increased reflexes (ataxic paraplegia), with a resultant lessening of knee-jerks, very marked ataxia, pains, paresthesiæ, and other phenomena of tabes. In this case under treatment the knee-jerks have partially returned, and ataxia of the hands especially bettered. Movements were and are an important factor in the treatment of this precocious case. One of the two cases in our list, a colored man, of specific origin, has shown much improvement since being reported in my "Brown-Sequard"† paper before this society in 1896. We feel that round cell infiltration and less true sclerosis takes place in the black race.

So much has been written upon the classic forms of locomotor ataxia that it might seem repetition to say more, yet the consideration of the development of some of these unusual forms of the disease, it seems to me, opens up a new chapter in semeiology, in the careful study of which indications appear, and treatment may be the better directed towards staying the progress, especially of the acute cases. The importance of thoroughness of any therapeutics of the malady should be insisted upon and confidence of the patient gained by timely diplomatic forewarning of the nature of the disorder in order to secure

the best results. Then, too, if the sclerosis is not so happily checked, the pathological change in the posterior columns of the cord may occasionally be stayed, at least from advancing so rapidly, as we have seen by such guidance in some cases that were prior to conscientious adoption of systematized treatment making rapid strides for so chronic a disease as we know tabes to be. Aside from this, the relief of distressing symptoms can be frequently attained by simple methods pointed towards the rational understanding of the individual case—*e.g.*, in the paper referred to last the value of testicular fluid injections in nineteen cases of ataxia (eleven of which were improved) was pointed out, as well as its use in other nervous affections. Since then, as pointed out in my conclusions of the record, the drug has proved its efficacy in a limited number of cases.

The following rare case, illustrating the precocious type of Duchenne's disease and with unusual etiology is here recorded: S. M. T., aged twenty-two years, of Irish-American parentage, reported for treatment at the clinic of the Orthopædic Hospital and Infirmary for Nervous Diseases in the service of Dr. S. Weir Mitchell, to whom I am indebted for the privilege of making this presentation. The patient's mother was said to be epileptic. He has three brothers and two sisters in splendid health, and there are no other nervous or diathetic maladies in his ancestry or among living relatives. The mumps and measles were the only diseases of childhood he had; never had any convulsive disorder. There is a vague history of stammering in childhood, soon recovered from. He grew to be a bright child and in every way apparently normal. Has never been a drinker, except occasionally of beer, and but periodically an excess of this, and there is absolute denial of syphilitic infection. No signs of specific disease can be determined. There is no history of metallic poisoning. He went to school until fourteen years of age, since which time he has been in the livery and later in the insurance business, at which for three years previous to the onset of the present trouble he walked excessively, as a collector—at times upon his feet eight hours daily. The onset of his disease he dates from December 16, 1895, when he was twenty years and three months of age, and immediately succeeding a severe attack of malaria, in which sweating, fever, a dull pain in the thighs, especially down the sciatic regions, violent vertical and frontal

\**Journal of Nervous and Mental Diseases*, January, 1895.

†A Clinical Report on the Use of Testicular Fluid Injections, *Transactions of the Medical Society of Pennsylvania*, vol. xxvii, pp. 165-179.



clavus-like headache with anorexia, were symptoms. There were no convulsions nor paralysis. He lay prostrate one week and was then taken home from his boarding-house, some thirty miles distant. One week later he was about again, but both legs now began to "jerk," and for that reason walking became difficult; it aggravated the condition so much that his gait became very unsteady, and soon he developed a sudden cardialgia upon such exertion as walking even a block. Then stiffness on rising in the morning became manifest and added to the annoyance of the subjective and objective "jerking" of his lower extremities. The precordial distress became rapidly worse on the slightest exertion.

Perhaps a month later lightning-like pains down the posterior aspects of thighs and legs became harassing and have continued intermittently ever since, in addition to which extreme fatigue in walking and the cardialgia crises mentioned were a triplet of etiological factors practically totally disabling our patient. He had no vertigo; bladder and bowel coordination remained normal. His vision was in no way disturbed, nor was the sexual function. There was no sensory disturbance developed other than the lightning pains noted.

Marked ataxic gait with increase of the above complex of symptoms had developed in a very short time—a few months—and has continued without abatement in spite of treatment (except as to some amelioration of pain), up to the time of coming under Dr. Mitchell's care, two years after the onset—i.e., at twenty-two years—when we found the following:

*Status Prasens.*—Dark hair, nervous temperament, bright, 5 feet 3 inches in height, weight 125 pounds.

*Motor Symptoms.*—Station: Eyes open, unsteady; eyes shut, sways markedly in all directions. Gait is characteristic of locomotor ataxia. There is no static ataxia, and but slight associated movements of one hand when the other hand is tested for manner and range of motion.

*Sensory Symptoms.*—There is no loss of tactile, thermal or pain sense anywhere, but he still complains of intermittent, deep, lightning-like pains coming in paroxysms once or twice a week at their acme and located mainly in the postero-lateral aspect of the thighs, transitory and lasting from a few seconds to a minute. The pain is worse in damp weather, mere changes of atmospheric

temperature not affecting the pain one way or the other, nor does fatigue now seem to influence it. His rate of pain conduction is quick, power of localizing good, and weight sense preserved. There are no hyperesthetic areas, but he complains some of paresthesiæ of the extremities. He has no "girdle" sensation, marked gastric or other crises, the cardiac attacks having abated.

*Reflexes.*—Plantar, tardy response. The gluteal, abdominal and other skin reflexes are normal. Knee-jerks are both absent and not reenforcible. There is no tendo Achilles jerk, nor ankle clonus. The elbow-jerks and muscle-jerks are preserved. There is no localized or general atrophy and no loss of weight. Dynamometer records R. 145, L. 130. Hearing is normal.

*Eyes.*—Pupils equal, normal size, and respond normally to light and distance; disks normal.

Bladder and rectum are continent. There are no vasomotor or antedating trophic phenomena, but since childhood the man has been able to voluntarily dislocate his left hip.

The patient's speech is thick and clumsy. There is no true aphasia. Deglutition is easy. Respirations are hurried but normal, 22 per minute. Heart sounds are rhythmic and average 78 to 95 beats per minute; pulse is rather feeble. There is no cardiac murmur. Bowels are regular; urinalysis negative. He had no fever or other evidence of suffering from malaria when reporting for treatment.

The patient was admitted to the hospital, and placed at absolute rest in bed, two weeks after his case had been treated with little avail as an out-patient. The "rest" relieved him of much of the pain, and he was further buoyed up much by testicular fluid injections. Daily scientific massage was practised, and after several weeks he was gradually gotten out of bed and was trained in gymnastic movements, as forward extreme flexion of the body, standing with his eyes closed, and in standing upon one foot with open and then with closed eyes, extensions of the arms over the head, and in training his incoordinate finger movements by voluntary daily practise. At the end of seven weeks his pain had disappeared, coordination was much improved, and he could jump from a street car in motion, something he had been unable to do for months.

When the patient was discharged from the hospital, on November 14, 1897, he was instructed to be on his feet but little and to

continue the gymnastic and flexion movements described in order to reeducate his disabled centers in coordination, a treatment which, begun here and abroad, has in our hands proved of value in several cases of ataxia. On February 18, 1898, the patient returned to the city, reported continued improvement, and appeared to be in excellent health. There is no notable difference in his nervous system, except that the exterior reflexes of the arms are more marked than the flexors, the elbow-jerks being very difficult to elicit. Coordination of hands had improved, however.

On March 4, 1898, he reported again. His station had become much more stable, and gait less ataxic. Pain in the left hip had become an annoyance, and during the past ten days that joint had become more easily dislocated. Stretching of the ligaments in a slip while walking may account for both. The elbow-jerks could not be elicited on this day, but the extensor response to a blow was quite normal. Perhaps the defect of speech had become more staccato. No advance in subjective sensations to patient had occurred; in fact, he was much improved in every way. The shooting pain down the thighs he had had for two years since the onset of the disease and his admission to the hospital had entirely ceased since his discharge; also the occasional irregular vertico-lateral shaking of the head, which he now told us bothered him some before admission, had likewise disappeared. He said he was stronger in his arms and could drive a team of spirited horses with certainty and wished to know if he could ride horseback, which was, with some misgivings, granted; the training in such, of course, being one of the best for coordination, as they well know who ride.

On April 12, 1898, the patient was seen again and showed improvement as to head shaking and ataxia. The training was ordered continued.

This case illustrates one of early aberrant ataxia with absence of the Argyll-Robertson symptom, with absence also of marked crises and girdle sense, and with a history of acute malarial intoxication as the probable exciting etiological factor, admitting that such precocious idiopathic predisposition may have existed. It has stimulated search of the literature and this study of a large number of cases, but no instance of malarial poisoning has been found positively recorded as causative of tabes. I think it must be an overlooked but rare etiological factor.

The following tables have been compiled and will suffice to more thoroughly illustrate prominent symptoms present in the cases here analyzed, the indications for treatment of the patients heretofore referred to, and the systematic management of all cases of tabes dorsalis:

TABLE I.—TABULATION OF 104 CASES TABES DORSALIS.  
(F. Savary Pearce.)

| Age. | No. of cases of onset.* | No. of cases reported.† | Age. | No. of cases of onset.* | No. of cases reported.† |
|------|-------------------------|-------------------------|------|-------------------------|-------------------------|
| 20   | 1                       | 0                       | 46   | 2                       | 4                       |
| 21   | 0                       | 0                       | 47   | 11                      | 9                       |
| 22   | 1                       | 2                       | 48   | 3                       | 10                      |
| 23   | 3                       | 1                       | 49   | 3                       | 4                       |
| 24   | 0                       | 4                       | 50   | 0                       | 4                       |
| 25   | 0                       | 1                       | 51   | 1                       | 4                       |
| 26   | 2                       | 1                       | 52   | 2                       | 3                       |
| 27   | 2                       | 2                       | 53   | 2                       | 3                       |
| 28   | 4                       | 0                       | 54   | 0                       | 2                       |
| 29   | 2                       | 0                       | 55   | 0                       | 1                       |
| 30   | 5                       | 0                       | 56   | 2                       | 2                       |
| 31   | 3                       | 3                       | 57   | 0                       | 2                       |
| 32   | 2                       | 3                       | 58   | 0                       | 2                       |
| 33   | 2                       | 3                       | 59   | 0                       | 2                       |
| 34   | 2                       | 3                       | 60   | 1                       | 2                       |
| 35   | 2                       | 3                       | 61   | 1                       | 2                       |
| 36   | 0                       | 2                       | 62   | 0                       | 2                       |
| 37   | 9                       | 5                       | 63   | 0                       | 2                       |
| 38   | 1                       | 4                       | 64   | 0                       | 2                       |
| 39   | 1                       | 0                       | 65   | 0                       | 0                       |
| 40   | 2                       | 0                       | 66   | 0                       | 0                       |
| 41   | 5                       | 0                       | 67   | 0                       | 2                       |
| 42   | 2                       | 0                       | 68   | 0                       | 0                       |
| 43   | 6                       | 0                       | 69   | 0                       | 0                       |
| 44   | 2                       | 2                       | 70   | 0                       | 1                       |
| 45   | 3                       | 5                       | 72   | 1                       | 0                       |

\* 44 not given.

† 37 not given.

Cause given (112 cases): Smoking (tobacco), 2 cases; alcoholism, 10 cases; exposure to wet and cold, 50 cases; grippe, 4 cases; trauma, 3 cases; bleeding piles and operation for, 3 cases (confirms our opinion as to anemia of cord being ultimate chief cause of tabes; primary cause varies); syphilis only, 15 (?) cases; rheumatism, 25 cases.

Cause found (in some not determinable): La grippe, 2 cases; alcohol, post-alcoholic neuritis, 12 cases; trauma (back, etc.), 16 cases; gunshot wound, 4 cases; idiopathic congestion of cord, 2 cases; malaria, 1 case, possible 2 cases; idiopathic, 16 cases; lead poisoning, 4 cases; acquired syphilis traced positively, 20 cases—1 in 6 cases; number cases of congenital specific taint noted, 3 cases; exposure to wet and cold, 5 cases; overwork (strain) and worry, 20 cases—1 in 9; hereditary nervous diseases, 5 instances; insanity alone, 1 instance; complicated by general paresis, 2 cases, both males; paralytic stage, 1 male, 1 female.

Average time after initial lesion of syphilis, 24 years (fourth stage syphilis).

TABLE II.

Males, 166; females, 28; proportion of 6 to 1. Eulenburg reports 128 to 21; proportion of 6 to 1. Gowers reports 10 to 1. Duchenne saw only four cases, and Trousseau only three cases, of tabes in women. Dr. S. Weir Mitchell tells me he has seen 24 cases.

Nationality: American or English, 119 cases; French, 2; German, 21; Hebrew, 6; Irish, 25; colored (not pure), 2. In nineteen cases the nationality is not given.

Aberrant forms: Six cases. Pseudo cases, 16; phthisis (?) in 16 cases.

Motor phenomena: Tremor marked in 4 cases; paresis of all muscles early, 17. Paralytic form (stage), 2 cases. Most cases able to be (walk) about.

Sensory phenomena: Anesthesias noted in 12 cases; paresthesia in 125 cases; pain, 13 cases. Location of marked pain mostly in stomach, next in legs, less in arms. Rare crises, laryngeal, 2 cases.

Knee-jerks slightly persisting, 3 cases.

Eyes: Atrophy, 30 cases. Argyll-Robertson pupil, 150 out of the 156 in which this symptom was carefully noted, and less in young cases.

Blood average of half a dozen anemic cases; hemoglobin, 45 per cent.; red blood-corpuscles, 2,464,000.

Arthropathies: Seven cases. Amaurotic type, 4 cases; heart and circulation, 2 well marked aortic murmurs; 4 systolic mitral murmurs. Skin cold in most cases. Pulse above 98. In 7 cases pulse over 100 constantly.

**Diagnosis.**—Diagnosis must be made from spinal syphilis, which is an early tertiary lesion (tabes might be called a *quaternary* stage or lesion), by noting the more early involvement of the bladder in syphilis of the cord, the more wide-spread lesion, and the, as a rule, more irregular symptoms, as of the pupil phenomena and the shifting nature of the disorder. Generally the irritation of the lateral tracts in syphilis of the cord is sufficient to produce spastic knee-jerks.

In Friedreich's disease, from the very early development, the nystagmus, the lateral curve of the spine, the club-feet, the staccato speech, make differentiation easy.

From polyneuritis (many of the pseudo-cases) great difficulty is sometimes experienced. Look for tenderness of the nerve trunks, atrophy and reactions of degeneration, some reenforced knee-jerks varying in degree of response, normal pupils, and more quick response to treatment. One of our cases was so typical of tabes as to make diagnosis not positive until a somewhat rapid cure followed treatment. It is to be remarked that la grippe the past winter has been a potent cause of neuritis, taking on, too, this peculiar pseudo-tabetic type.

From cerebellar lesion, the titubation, aural symptoms, more constant objective vertigo, shifting knee response, and associated hysterical phenomena should not mislead.

Hysteria can mimic anything. The knee-jerk is almost never absent *in toto* in hysteria, nor would a suspicious Argyll-Robertson pupil be found to be *bona fide* upon repeated examination.

Hypnotism or etherization may be required to distinguish between hysterical ataxia and true tabes in rare cases, for marked ataxia and even crises may exist in hysteria; yet the shifting condition of symptoms in hysteria would be points. Of course, stigmata of hysteria are to be looked for, and on the other hand the greatest blunders are made when one disregards organic disease, hysteria also existing. S. Weir Mitchell and J. H. Lloyd have reported interesting cases of hysterical ataxia. Patches of anesthesia about the trunk and thighs have been especially noted by Patrick and others.

Pernicious anemia may go on to tabes.

Several cases in this series have been reported by Wharton Sinkler and Eshner; while Burr has made confirmatory histological examinations in these cases.

**Prognosis.**—The average life of tabetic patients is from ten to fifteen, or even fifty years. No one can foretell the power of resistance of the individual. Taken all in all, an early case (as in epilepsy) tends to be worse, for the reason of susceptibility of all tissues, and to wide-spread invasion in the young, as previously referred to in the early part of this contribution.

Complications of tabes are asphyxia or syncope, of central origin, phthisis, paralysis of the bladder, or septic cystitis and septicemia, tormenting pain, and finally general paralysis, really the terminal stage of the disease. Incidentally it may be mentioned that the voluntary attempt at deep inspiration for better oxygenation of the blood (sighing) is an endeavor of Nature to reenforce the weakened vagi and phrenic nerve centers.

**Treatment** is a long and careful business. By studying the etiology and symptomatology most carefully and minutely are the best results to be attained. I am more hopeful than most therapeutists, but believe, however, with Collins, that syphilis once contracted and thoroughly treated may still leave behind the "something" that causes degeneration of the posterior columns. In the unsuspected case (where the syphilis was thought entirely eradicated years before), then, if a sequent tabes does begin, it is most apt to be very incipient and perplexing in diagnosis. I have seen such a private case in the practise of Dr. S. Weir Mitchell, where most thorough antisypilitic treatment had been carried out by competent men, but the specific tabes, confusing as it was, was surely coming.

Treat syphilis thoroughly. Keep up the general health of the patient in suspected tabes. At all hazards look to the stomach; treat any rheumatic or any other diathesis; continue small doses of iodide of potash and bichloride of mercury, which are valuable alterative adjuncts in most cases from any cause. Cod-liver oil is the nutrient *par excellence*. Diet is paramount and should be suitable to the individual case (a most nutritious one). Donovan's solution gtt. v to x t. d., auri et sodii chlor. gr.  $\frac{1}{10}$ — $\frac{1}{8}$ , sometimes act wonderfully well as alteratives. Antipyrin and phenacetin are the most valued of analgesics, but heart and circulatory depression, which I have seen disastrous in several instances of painful tabes, should be

guarded against. Use morphine only as a *dernier ressort*, else you add to tabes another almost as serious a malady, we can almost say. The phosphates and testicular fluid injections have been proven of value to aid nerve nutrition.

Suspension by the Mitchell or Lombard apparatus (head-elbow) has been fully reported on by Hinsdale, with beneficial effects in some cases. This is probably due to stretching the membranes of the cord, freeing the posterior roots, and hastening circulation in the posterior columns.

The training of coordination, also used at the Infirmary for Nervous Diseases for the past twelve years, consisting of having the patient stand with eyes open, then closed, approaching the fingers to the nose, etc., under these two conditions, and also walking upon a straight line, of flexions of the limbs and trunk and training of static coordination (a treatment recently elaborated by Frankel), I have seen do great good, as evidenced by a case reported by me in the *University Magazine* for May, 1898. The more extreme gymnastic measures should be used in the order of strength of the patient—*i.e.*, whether he is in the incipient, the ataxic, or paralytic stages.

Cauterization of the spine may much alleviate pain. Bromides may occasionally be required to allay irritability of the nervous system. Strychnine is apt to do harm, but small doses of *nux vomica* may do good in toning up the digestive tract. Keep the bowels well open, and the urine normal by diuretics.

Electricity in the form of faradism and descending galvanism and franklinization are in this order agents of value not frequently enough scientifically used. Hydrotherapy has an important rôle—hot and cold baths. Hydrotherapeutics in the shape of hot and cold douches applied to the spine especially for five minutes daily is often of great stimulating power.

A rest treatment may be essential for the best results in a stubborn advancing case. Such patients should never exercise to tire, and should be in the fresh, dry air much, especially at high altitudes, thus to favor peripheral circulation by decreased pressure. Massage and electricity properly applied, as said, are most valuable. The use of stimulating liniment rubbed well over the surface of the body has proved also of great value in stimulating circulation, so deficient in this class of patients.

The following prescription has done well in my hands:

℞ Ammon. chlor., ʒ iiij;  
Glycerin, f ʒ j;  
Tr. capsic., f ʒ ss;  
Aq. menth. pip., q. s. ad f ʒ xij.

M. et sig.: Rub on body daily for twenty minutes, with the massage.

#### ERYTHEMATOUS RASHES FOLLOWING THE USE OF ENEMATA.

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From time to time the subject of scarlatinal and urticarial rashes appearing after enemata crops up in the medical papers, and is regarded as somewhat of a rarity, the fact being that they are extremely common. It is surprising that in the chief medical textbooks there should be no authoritative recognition of the phenomenon. If this association were kept in mind, a deal of light would be thrown on many of the unexplained rashes that alarm and puzzle house physicians. During my own period as house physician I made brief notes of fourteen such cases, and several more were not recorded as soon as we were assured of their causation. The rash invariably occurred in young patients, the eldest of these fourteen cases being a girl of sixteen. Of this group of cases nine were girls and five were boys. It was not in every case associated with constipation, as in two cases it followed half-pint injections of salt and water into the rectum for the expulsion of threadworms. Of the remaining cases five were suffering with or convalescent from typhoid fever, three were cases of chlorosis, one a case of gastric ulcer, one a case of inflammatory trouble about the sigmoid, and the remaining two were in children prior to operation. There was thus a marked association with gastro-intestinal disorder, and constipation was only certainly absent in two of the cases. However, it must be borne in mind that these are the very cases in which in the nature of things enemata will most probably be used.

It is difficult to say how soon after the injection the rash appeared, as it was often not noticed until the patient was washed, its common site of origin in our cases being the buttocks. In one or two cases it appeared within three hours of the enema. In the milder cases the rash was usually scarlatinal in character and diffuse, but in more

severe cases confluent, and occasionally urticarial. There was no absolute uniformity of distribution in the cases, though the localization was to some extent a diagnostic feature. It was symmetrical, usually most marked upon the buttocks, and spreading downwards over the thighs front and back to the knees; in an upward direction it commonly extended as high as the angle of the scapula, and tended to be thicker over the flanks than over the abdomen. The arms, above and below the elbows, were affected, but not so constantly as the legs. Only in five of these cases was the face affected, and then the distribution was pretty general over the forehead, ears, cheeks, and on the neck, particularly along the line of the lower jaw.

There was nearly always some degree of irritation of the rash, not marked in the scarlatinal cases, but often intense in the urticarial cases. In one or two cases there was no complaint throughout. The rash usually subsided in less than twenty-four hours from the time of being first noticed, but in one case an urticarial rash persisted through three whole days. In none of these cases was the rash followed by desquamation.

In all but two cases the initial enemata were of soap and water. In two cases I was anxious to see whether the soap was to blame, and tried plain water enemata instead. In one case no rash followed the enema, neither did any rash follow the repetition of the soap and water enema. In another case—a boy with inflammatory trouble around the sigmoid—we were able to prove to demonstration the connection of the rash and the enema, by producing a rash whenever an enema was administered, and this indifferently as to whether the enema was of water or soap and water. I have never seen a rash follow the use of a glycerin enema, or a glycerin suppository; the same, too, is true of nutrient enemata, the bowel, however, in these cases having always first been cleaned of feces by a soap and water enema.

In only one of these fourteen cases was there any soreness of the throat, and this was not of a degree to suggest scarlet fever. In four of the cases there was a rise of temperature coincident with the rash, but in each case below 102°; in five there was no alteration of the normal temperature; and of the others I have no record.

It has been suggested that the eruption is due to the sudden absorption into the blood and lymph streams of poisons from feces accumulated in the intestine; while dry they

are harmless, but wet them and absorption commences at once. As is the case with other irritants in the alimentary canal, their entry into the circulation is often exhibited as a sharp attack of urticaria. The greater frequency, or perhaps one may say the exclusive incidence, on children is merely an index of a more delicate skin. If such be the explanation one would naturally expect to find similar eruptions occurring after purgatives, especially those that, while failing to produce an evacuation, serve to liquefy the feces in the intestine. However, it is quite intelligible that such may not be the case, when one recalls what marked relief of the so-called toxic symptoms of an ordinary constipation follows the administration of a laxative, even though there be no actual passage of feces. A recent writer in the *British Medical Journal* asserts that such rashes are occasionally associated with brisk aperients.

The whole importance of these rashes consists in the recognition of their cause, so that they may not be mistaken for aberrant cases of scarlet fever, and this can be best effected by remembering the association. In themselves they are of no importance, as they subside spontaneously with the simplest attention to the function of the gastro-intestinal tract.

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*REMOVAL OF THE OVARIES AND TUBES;  
REMOVAL OF OVARIES; CHRONIC  
OVARITIS PRODUCING RE-  
FLEX DISEASE OF  
THE EYES.\**

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Owing to an attack of sickness I have not been able to see until now the patient whom I bring before you. She is under an anesthetic, and we will first carefully examine and determine her condition before we decide as to what we shall do. We are prepared for operation.

The patient is twenty-five years of age; her mother, father, two sisters and a brother are living and well. She had the ordinary diseases of childhood, and typhoid fever. She menstruated at seventeen, the flow being scant and attended with severe pain. Shortly after the advent of menstruation it ceased

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\* Clinical lecture delivered at the Jefferson Hospital, before the American Medical Association.

and did not reappear for a year. She then had trouble with her lungs, with cough and considerable expectoration. She was treated for tuberculosis. She informs us she had scrofula when young. After treatment her menstrual function returned, but has been more or less irregular since. She was married at twenty-two, but has never been pregnant. At present she has constant dull pain in the left ovarian region. This pain is aggravated at times, and becomes very severe on exertion. After exercise she swells, and this continues until the entire abdomen is distended. On several of these occasions she has been suspected of being pregnant, and about to suffer a miscarriage. The condition passes away with a discharge of a large quantity of gas. She has suffered much from headache, particularly in the back and front of the head. She informs us she has of late lost flesh rapidly. Her appetite is irregular, and bowels constipated. Any attempt to regulate the bowels results in diarrhea; pain also upon their movement. There is burning pain during micturition, and constant leucorrhea. Of course, some of these symptoms indicate the neurotic character of the disease.

Whether it would be necessary to do any operation on this patient will entirely depend upon whether we find organic change. I would not for one moment consider it advisable to remove the ovaries simply because she has such attacks, but limit such an operation to diseased conditions which can be determined prior to the procedure.

On examination we find there is a mass on the left side of considerable size. It is evidently not intestinal; that it is by no possibility a phantom tumor is evident from the fact that she is under an anesthetic, which would at once bring about its subsidence. There is some enlargement of the ovary and tube on the right side, but much less than on the left. The mass is situated so high on the left that I do not feel it wise to undertake the operation through the vagina, so I will make an abdominal incision.

Remember the history of this patient, the history of scrofula in early life and the treatment she has undergone for suspected tubercular disease. It is not impossible that we may have tubercular disease of the ovary and tube on the left side. She has been married a number of years and never been pregnant—undoubtedly, then, the result of conditions which have produced changes in the ovaries and tubes that have rendered her sterile. Of course she may have had an

infection which may have produced an inflammation extending into the pelvis, but the early history of the patient would rather lead us to believe that the trouble is independent of any infection of this kind.

I cut through the abdominal wall into the peritoneal cavity and find a cyst over the fundus of the uterus which ruptures easily; everything is matted together. The cyst is evidently one of the corresponding ovary and tube. The pedicle is separated, drawn out, and transfixed with silk, using as fine silk as will serve the purpose for its ligation. I generally prefer chromicized catgut for this purpose, as it is absorbed, and when absorbed we are not subsequently troubled with it. The entire omentum is forming a part of the mass which we have felt. The cyst ruptures as soon as it is touched. I now bring up the right ovary and tube, and I will show you that it is also in a condition which precludes its ever being functionally useful, so you can see why she has never given birth to children. Here is the tube, the end of which is closed; there it is united with a cyst of the ovary.

In this case the end of the tube has been bound down to the surface of the ovary by adhesions and fluid accumulated within the tubal canal, a cyst developing in the ovary at this point, the wall of which has subsequently through pressure broken down, forming a continuous cavity—thus, a tubo-ovarian cyst. This ovary and tube is removed. Ordinarily in such a case I would advise removal of the fundus of the uterus, when it is necessary to remove both ovaries, but in this patient the uterus is small, and I do not see that the additional operation is necessary.

The very important point in these operations is to make sure of complete hemostasis. I look at both stumps here to make sure that hemorrhage is completely controlled. As there is no bleeding we proceed to irrigate the cavity with a normal salt solution. This fluid as it flows out is bloody from the cyst which ruptured on the left side. We find there has been bleeding below the point at which the ligature was applied from some adhesions, and we apply the ligature further out on the pedicle. We fill up the belly with a normal salt solution and close the wound. This serves the same purpose as hypodermoclysis. The wound is closed with a Haughey suture, which consists of a continuous suture for peritoneum, muscle, aponeurosis, and subcuticular for the skin, the ends of each suture being brought out at the ends of

the wound and secured by perforated shot over perforated plates. This suture secures thorough apposition of the aponeurosis and thus firmer union.

*Removal of Ovaries; Chronic Ovaritis Producing Reflex Disease of the Eyes.*—The next patient is thirty-one years of age, whose mother is living and healthy. Her father died of typhoid fever at thirty-eight, one sister died of tetanus at thirty-six, four brothers died in infancy, and one is living and healthy. She had the usual diseases of childhood, with puberty at thirteen, regular periods, flow scant, accompanied by severe pain. She was married at nineteen and had one living child thirteen months subsequently, delivered by instruments; suffered a miscarriage five and one-half years later. During the birth of her child the cervix was lacerated; had an operation in November last. This relieved her of the bearing-down pain, from which she constantly suffered, but she still continued to have pain in the back, interrupted in character, worse at night, very severe during menstruation, of a dull aching character over the situation of the left ovary. Occasionally there is pain on the right side. She complains of a peculiar drawing pain in the back of the neck and shoulders during the menstrual periods; no discharge, appetite fair, tongue clean, bowels regular. She has been treated in the out-patient ophthalmological department, and was referred from there to this ward.

The eye trouble began last August, and has grown gradually worse. At present she can scarcely see to read or sew. Ocular conjunctiva very painful, cornua hazy, and there is a marked pericorneal injection. The patient denies any syphilitic lesion, but states she has had repeated eruption over the body, hair constantly falling out, and suffers with sores and occasionally pains throughout the body. The diseased condition of the eyes has been attributed by the ophthalmologist to reflex conditions. The symptoms have not subsided under ordinary methods of treatment, and this form of condition is frequently the result of uterine disease.

Upon examination we find she has retroversion of the uterus, and the organ bound down. Upon the hasty examination I made of the patient a few minutes ago in the ward I was unable to determine any enlargement of the ovaries. Looking into this pelvis you see the absence of the fundus of the uterus where we normally expect to see it, lying forward. I push the intestines back and you

now see the fundus of the uterus; in other words, it is lying low in the pelvis. Now, looking in, you see the fundus, which has been raised up and turned forward. In the left ovary is a cyst, not very much enlarged, which I open, peel out the cyst, and find another in the right ovary. We have taken out the diseased portion of the left ovary and saved the structure. We close the ovarian wound with catgut.

The right ovary is found even worse than the left; part of this organ is in a diseased condition of ovarian apoplexy. We resect the diseased portion here and bring the parts together with suture. This may seem like a small part of ovary to leave, but I have seen a child secured on a smaller amount, and it is worth preserving. I have to be more careful in securing this on account of the possibility of hemorrhage. This is one of the large ovarian branches. We pass a ligature through the base on one side, in that way cutting off the blood-supply and arresting the bleeding.

I propose to fasten the fundus of this uterus to the peritoneum by the suture through the summit of the fundus, and a second suture a little farther back. The reason I do not take more than the peritoneum is that if the muscular was included we would have firm bands of adhesion which, if she subsequently became pregnant, would interfere with gestation and parturition; but the peritoneum stretches and forms a loose band that permits the uterus to move about and still stays the organ forward. I made no haste in this operation, because I wanted to show you its different steps and give you an opportunity to see how it is done. We close this wound with the Haughey suture in the different layers.

#### THE TREATMENT OF CHRONIC RENAL DISEASE.\*

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In discussing the treatment of chronic renal disease it is necessary to commence by some subdivision of the subject further than that indicated in the official programme, since the treatment of chronic renal disease includes several conditions which differ in their pathology and symptoms quite as much as in their etiology. For the purposes of the

\* A paper read before the British Medical Association at Edinburgh, 1898.

present discussion it may be convenient to divide the subject of chronic renal disease according to broad pathological lines under the headings of chronic nephritis, renal cirrhosis, and lardaceous disease.

The first condition is that which includes chronic forms of renal disease which are commonly consecutive to an acute attack and the changes are partly connected with the glomerulus, partly with the tubules of the renal epithelium, and partly with the interstitial tissue. The principal changes, however, affect the two former structures.

With renal cirrhosis we are dealing with a disease of perhaps more chronic type which commences very insidiously, taking its origin in irritation due to alcohol, to gout, or to other forms of chronic irritation. In these the interstitial tissue is chiefly affected by an overgrowth at the expense of the secreting structures, and in this condition, also, the vascular system is greatly altered, the left ventricle is hypertrophied, the apex beat displaced, the arteries thickened, and the blood-pressure raised.

In the third, lardaceous disease, the capillary tufts and the small arteries are primarily affected, but it is rare for this condition to exist without some interstitial changes, and inasmuch as lardaceous disease commonly results from some chronic suppurative process, the symptoms are those of the original disease rather than of renal affection.

Taking these three types, then—chronic nephritis, renal cirrhosis, and lardaceous disease—the subject calling for discussion is the treatment applicable to these various conditions, and since the last mentioned plays such a secondary part and since the treatment is necessarily almost entirely restricted to the surgical treatment of the primary cause, it will perhaps be more convenient to limit attention to chronic nephritis and to renal cirrhosis. Of these two conditions there is much room for discussion concerning hygiene and diet. Can we, by any hygienic change, or by any dietetic directions, modify the course of these conditions? Can we, by these means, retard the disease, or is it possible to exert any curative effects? Or, on the other hand, are our efforts in these directions to be limited solely to the relief of prominent symptoms as they arise?

In chronic nephritis there is a tendency to the occurrence of subacute attacks with small provocation. Patients who have been passing a fairly large amount of albumen in

urine of almost normal specific gravity may, from time to time, pass blood, and the appearance of the urine might, in the absence of history, lead to a diagnosis of acute nephritis. These subacute attacks during the early stages of chronic nephritis form, perhaps, the greatest danger to which these patients are liable, since there is fair reason for believing that such attacks indicate an extension of the disease to some portion of the kidney which was previously but little affected. Hygienic treatment, therefore, has largely to be directed towards diminishing the risk and frequency of these subacute attacks, and there is very little doubt that these risks may be diminished by the avoidance of exposure to sudden alterations of temperature; and if the means of the patient do not permit him to change his occupation, or to winter abroad so as to avoid the proverbial uncertainties of the British climate, much may be done by clothing in non-conductors which readily absorb moisture and from which evaporation proceeds slowly. Such non-conductors are of course to be found in various forms of woollen garments, and while it is advisable that patients should be thoroughly clad in wool, it is especially advisable that they should wear a broad flannel binder round the waist similar to the woollen "cholera belt" of tropical countries. Precautions of a like character may sometimes also be taken in connection with cases of renal cirrhosis, but the occurrence of subacute attacks is less to be feared since it is less frequent.

The prejudicial influence of overexertion and of mental strain is likely to be felt in connection with both of these types of chronic renal disease, and it therefore becomes necessary to recommend that patients should, so far as possible, guard against business anxieties and worries, and against late hours and other forms of excess. In both conditions, however, it is undesirable that the patient should be encouraged to lead a life of idleness, since one of the most troublesome features connected with chronic renal disease is the tendency to mental depression. In both conditions moderate exercise is likely to be beneficial during the early stages, and with renal cirrhosis, where the drain of albumen is comparatively small, the progress of the disease may be delayed considerably by judicious outdoor exercise. I have known one case of renal cirrhosis which has remained almost stationary during the last twenty years, the patient being so placed that he was able to indulge in golf, in cricket,



and in hunting, while of more serious work he was able to undertake the duties of justice of the peace and also to interest himself in local politics.

The problems concerning the dietary of chronic renal disease do not, I think, leave much room for difference of opinion. It is possible to prejudice the well-being of the patient by undue restrictions as much as by too great liberality. It is undoubtedly possible, by carelessness, to increase the amount of albumen lost in chronic nephritis; and, on the other hand, it is possible to weaken the patient materially by persisting with a dietary containing but few albuminous articles.

Chronic nephritis probably calls for greater care than renal cirrhosis, since the drain of albumen is greater and since also carelessness, more particularly with regard to alcohol, is liable to favor the supervention of the subacute attacks. During the occurrence of a subacute attack the dietary of the patient has to resemble that ordinarily adopted during acute nephritis, but after the disappearance of blood and after the albumen appears to have reached a fairly constant stage, there is no advantage in persisting in a non-albuminous form of diet; and, on the other hand, there may be considerable disadvantage in endeavoring to force the patient to persist with a distasteful dietary of milk and beef tea to the exclusion of solids. From time to time it has been held that in cases of chronic nephritis albuminous substances in the dietary should be reduced in quantity from the dread that they might increase the loss of albumen, and experiments have been made with a view to showing that, for example, the consumption of eggs is likely to be followed by an increased loss of albumen. It is, of course, somewhat difficult to estimate whether the increased loss bears any definite ratio to the increased consumption of albuminous substances, but inasmuch as the well-being of the patient depends, not upon the amount of albumen lost, but upon whether the loss is greater than the gain, it will be evident that in determining whether albuminoids such as eggs and meat should be given we have to be guided by the effect upon the strength and comfort of the patient. The foregoing is, however, only true during the early stages of chronic nephritis, and it is generally admitted that as the disease progresses and as the tendency to dropsical effusion becomes more marked the diet has to be modified somewhat, so that larger quantities of bland, unirritating fluids have to be taken with the

view of increasing the eliminative work of the kidney.

In considering the dietary of patients with chronic nephritis or with renal cirrhosis it must not, however, be forgotten that in both conditions there is extreme probability of dyspeptic disturbance, and the dietary of the individual has, to a great extent, to be modified in accordance with this danger. On the other hand, it must not be forgotten that dyspeptic disturbance in both of these conditions may form indications of the onset of uremic symptoms, and it has even been suggested that this might result from a dropsical condition of the mucous membrane of the stomach and the intestine in cases of chronic nephritis. This tendency to dyspepsia generally leads patients to have some aversion to many forms of diet; in particular they frequently rebel against meat, and accordingly it is generally desirable almost entirely to eliminate ordinary butcher's meat from the dietary so that the tendency to anorexia is minimized. Similarly it is usually advisable to encourage these patients to take a fairly large proportion of milk, though not to enforce a milk diet. Milk appears to stimulate the kidneys slightly and to promote the removal of nitrogenous waste. Frequently, however, it is found to be too constipating in its effects and to necessitate the occasional employment of some mild laxative.

While it is possible to favor the extension of chronic nephritis by excesses with alcohol, we are often asked whether alcohol should be taken at all by these patients, and if so in what form, and in what amount. The use of alcohol will probably leave room for much difference of opinion, and I fully anticipate that the course of the discussion will, to some extent, turn on this question. My own feeling is that it is generally better not to interfere with the ordinary habits of the individual with regard to alcohol, provided these habits do not lead to excessive consumption of stimulants. I would defend my practise by a reference to the well known depression of spirits and lack of appetite so frequently shown by patients with chronic nephritis. As in delirium tremens, it will often be found that small quantities of alcohol will enable food to be taken even when the appetite and digestive powers appear to be at a low ebb; and on the other hand, in these patients total abstinence is likely to be followed by severe depression, which is not only a source of discomfort to the patient and his friends but also a source of weak-

ness. As to the form of alcohol I think it is better to avoid the use of malt liquors, though small quantities of bitter beer seem to do very little harm, unless the patient is suffering from renal cirrhosis of a gouty type. More commonly one is in the habit of encouraging patients of middle age to take at meal-times small quantities of pure spirit well diluted. I lay some stress upon the need of purity since, in these cases, the spirit that is permitted is used as a drug which is intended to counteract depression and to assist digestion, and inferior forms of spirit are only too likely to increase the tendency to headache of which these patients so frequently complain. From the foregoing remarks it will be seen that I think that when chronic nephritis or renal cirrhosis exist the dietary has to be planned so as to avoid further extension of the disease, and that the utmost that can be hoped for is to arrest rather than to cure.

*Medicinal Treatment.*—The medicinal treatment of chronic nephritis is not very hopeful, and the attention is confined almost entirely to the treatment of various symptoms which develop in the course of the disease. When there is reason to believe that the disease results from malaria or syphilis, the ordinary treatment adapted for these diseases may be employed. Efforts have been made from time to time to relieve the inflammatory condition which has been found to continue during the greater course of chronic nephritis. Various astringents have been used with the view of controlling inflammatory action, while tartar emetic and nitric acid have been recommended for the same purpose. It is much more hopeful, perhaps, to consider the symptomatic treatment than to pursue the chimera of a continued attempt to treat the disease as an entity. Apart from uremia, the three conditions desirable to cope with are: Firstly, diminution of urinary secretion; secondly, albuminuria; and thirdly, dropsy. The diminution of urinary secretion is frequently an accompaniment of increased dropsical effusion, hence its difficulty. The two conditions are frequently treated simultaneously, when the diminution in the excretion of water depends upon a subacute attack. Diuretics must be avoided and the case must be treated on the same principles as acute nephritis. On the other hand, when there is no evidence of active engorgement cardiac tonics, such as strophanthus and digitalis, are frequently of great service. Of the two digitalis is perhaps the more useful, but it is frequently necessary to alternate their em-

ployment as in ordinary cases of weakness of the heart. It is sometimes desirable to use theobromine, caffeine, or diuretin, either alone or in conjunction with strophanthus and digitalis. I remember one case in which, although the dose of digitalis had been increased, very little alteration in the quantity of urine passed had been noted until diuretin was used. Of all diuretics, however, water is undoubtedly the best and can be given freely, unless it is found that the dropsy increases while the elimination of urine shows no change. Milk is often employed as a diuretic in these cases, but, as previously indicated, it is undesirable to attempt to limit the patient to any fixed diet.

The work of the kidney is often improved by a temporary rest such as results from the administration of saline purgatives, which are, however, more frequently used with the idea of affecting dropsy than with the simple object of increasing the work of the kidney. Ringer speaks strongly in favor of the use of large doses of iodide of potassium, and he thinks that their diuretic influence is by no means limited to syphilitic cases.

Next, with regard to the loss of albumen, this is sometimes found to be reduced during the early days when the patient must be kept in bed. Of the drugs which have been employed with the object of reducing albumen, the greatest favor has been shown to the class of astringents. Of these the salts of iron are perhaps those which give the best results, though the improvement is often to be seen in a diminution of anemia rather than in a diminution in the loss of albumen. Many of the astringents have the disadvantage of favoring indigestion, and their range of utility is therefore greatly limited. Acetate of lead has been recommended, more particularly in cases associated with much hematuria, but this latter symptom is, I believe, better treated with rest, warmth, and diet than with the administration of drugs. Similar considerations generally affect the administration of ergot, which has sometimes been used with the intention of reducing albuminuria. Tannic acid and gallic acid and the newer combinations such as tannoform and tannalbumin have lately been brought into notice, but, notwithstanding the weakening influence of a great drain of albumen, it is, I believe, desirable to watch the general condition of the patient rather than to concentrate attention upon the albuminuria, since so many of these astringents interfere so greatly with the digestive powers.

The treatment of dropsy may be considered under the headings of treatment with diaphoretics, diuretics, and hydragogue purgatives, though in extreme cases it is necessary to adopt surgical measures of relief. Of the diaphoretics there is perhaps but little room for discussion connected with the external agencies to be employed. Many are in favor of the use of the wet pack, and often before the use of the wet pack the action of the skin may be stimulated by vapor baths or hot-air baths, or even by the use of hot-water baths, and the diaphoretic action may be increased by giving copious draughts of water during the administration of the bath. Turkish baths have been recommended, but these can only be employed in mild cases and are wholly unsuitable when there is much dropsical effusion.

It is perhaps unnecessary to enter into details here regarding the various devices by which patients have been submitted to the action of heated air. More important, perhaps, is the question of pilocarpine. Few drugs have given rise to so much disappointment, although perhaps the reaction at the present time has been rather too great. I have seen some advantage result from its employment as the starting-point of diaphoresis, which has been continued by the subsequent use of the bath. It is well recognized that exceptional cases are from time to time met with in which it is difficult to induce action of the skin, and in these the bath is apt to produce considerable discomfort and headache. In these cases pilocarpine may be tentatively employed, the effect on the circulation and the dyspnea being carefully noted during the administration of the drug. It must not, however, be forgotten that although some observers praise pilocarpine, there is considerable evidence of dangerous results from its employment; thus Proben (*New York Medical Journal*, July 18, 1896) has found that it causes an increased frequency of the heart's action, the pulsation sometimes increasing forty or fifty to the minute, and that there is a simultaneous lowering of the blood-pressure which he attributes not only to vasomotor paralysis, but also to direct depressant influence on the cardiac muscle; and he states that severe collapse, nausea, vomiting and diarrhea may sometimes ensue. Another contraindication to the use of pilocarpine lies in its influence upon the pulmonary circulation, since it favors rapid transudation and edema of the lungs. Proben indicates a further danger in the pos-

sibility of filling the bronchial tubes with saliva, if the reflex activity of the larynx is diminished owing to coma. Summing up the contraindications to the use of pilocarpine, one must mention progressive weakening of the wall of the heart, either from fatty degeneration or from passive dilatation and conditions of engorgement of the lung, or accumulations of fluid within the pleural cavity. In any of these the drug, if used at all, must be employed with great caution and as a starting-point for diaphoresis, and not as the sole active diaphoretic agent.

It is probably unnecessary to spend time over the benefits to be obtained from the use of saline and hydragogue purgatives. These are so well recognized that it will be unnecessary to do more than to mention the value of sodium sulphate, acid potassium tartrate, sodium potassium tartrate, jalap, scammony, and perhaps mercury. Of the diuretics which favor the removal of dropsy, the salts of lithium, potassium and sodium need only be mentioned. Balsam of copabia has been mentioned, but has been found to be somewhat uncertain in its effects, and hematuria has often been attributed to it.

*Cirrhosis of the Kidney.*—With regard to cirrhosis of the kidney, treatment has to be almost entirely symptomatic, though from time to time certain drugs have been advocated for the treatment of the disease—for example, iodide of potassium in large doses for a length of time has been recommended, and some observers speak highly in favor of the use of chloride of gold and sodium. This treatment has, however, found greater favor in America than in this country, and even those who speak well of it indicate that it occasionally leads to dyspeptic symptoms. Of the symptoms requiring relief in connection with cirrhosis, one of the most prominent is persistent headache. Mild purgatives may occasionally give some relief—more commonly, however, it is necessary to employ remedies calculated to reduce arterial tension. Of these, perhaps the best known is nitroglycerin, which, either in the form of the tabellæ of the Pharmacopœia or as the solution of trinitrin, has been largely employed. Nitrite of sodium has also been used, and more recently other preparations have been added by Dr. Bradbury. It may be remembered that nitroglycerin is more continuous in its effects than nitrite of amyl, although it exerts similar effects in dilating peripheral vessels and thus lowering the arterial tension. This effect of nitroglycerin is perhaps

partly to be explained by its more slow absorption from the stomach, as compared with the rapid absorption of nitrite of amyl from the bronchial mucous membrane, and it is also partly to be explained by the gradual splitting up of the molecules of nitroglycerin after it has been passed into the circulation; the drug is hence particularly adapted to the relief of a chronic condition, while nitrite of amyl finds its special applicability in the relief of the symptoms of more urgent development.

Dr. Bradbury endeavored to find preparations which would be yet more permanent in their power of lowering the arterial tension, and he found that erythrol tetranitrate had this power, and it has accordingly been employed not only in cases of heart disease but also in some of those special forms of headache connected with renal cirrhosis. These special forms of headache have also occasionally been treated with antipyrin and antifebrin, especially when the headache is associated with much pain of a neuralgic character.

Another common symptom which demands special treatment is the tendency to sleeplessness, and this is frequently conjoined with either the persistent headache which has been already mentioned, or with pains of a more neuralgic character which come and go in more irregular fashion. The sleeplessness of renal cirrhosis may sometimes be abated by methods calculated to relieve tension of cerebral vessels. Sometimes sleep may be obtained by employing a hot foot-bath just before going to bed and by wrapping the feet in warm blankets, so as to further maintain the freedom of circulation. Should the patient suffer habitually from coldness of the extremities, sleep may further be favored by the use of a hot-water bottle. Frequently, however, it is found necessary sooner or later to have recourse to drugs, and the selection of a hypnotic for a patient with renal cirrhosis demands considerable caution since, although these patients are generally losing very little albumen, they are also excreting very little nitrogenous waste; hence it is important to avoid employing any remedy which might further interfere with the eliminative work of the kidney. Foremost among such remedies stands opium. Concerning the use of this remedy I venture to think that we may obtain some valuable experiences in the course of this discussion, since, while some observers consider that it is a dangerous drug to use and are never weary of warning against the risk of pro-

ducing uremic symptoms by its administration, others, on the contrary, have recommended its employment with the view of diminishing the severity and frequency of uremic attacks. I must confess that for my own part I am averse to the employment of opium or of any of the salts of morphine for the relief of insomnia due to renal cirrhosis, although I must admit that I have not seen any of the dangerous symptoms so often mentioned in connection with its use. Sir George Johnson was, however, very emphatic concerning the risks of opium and of morphine, and I have, on several occasions, heard him inveigh against the almost criminal folly of using this remedy which, in his belief, had frequently favored the onset or the return of fatal uremic convulsions.

On the other hand, it must not be supposed that in foregoing the use of opium and of morphine one is in favor of taking no measures to treat the insomnia. Many years ago, when the employment of hyoscine, which has lately been rendered official in the Pharmacopœia, was still in its infancy, I had to treat a patient with renal cirrhosis for troublesome insomnia, and I endeavored to use the then new hypnotic, and administered subcutaneously a dose of one-hundredth of a grain. The result was somewhat curious. The patient almost at once sank into a quiet, tranquil sleep, and the pulse, which had previously been somewhat irregular, became steady. The following morning he told me that he had had a most delightful night and that he had slept soundly all through; but this account did not coincide with that given by the nurse, who said that shortly after I had left him the patient commenced to exhibit symptoms of delirium, and that he appeared to be under the impression that he was present at a supper party of a somewhat gay character, that he shouted instructions and orders and occasionally sang scraps of comic songs of some antiquity and of doubtful propriety; in other words, the dose employed, although it procured unconsciousness for the patient, caused delirium of a type so commonly seen with belladonna poisoning, and accordingly, on subsequent occasions when this patient complained of sleeplessness, I employed a smaller dose with equally satisfactory results to the patient and with far less fatigue to the nurse.

Of other hypnotics which have given satisfaction in this form of sleeplessness must be mentioned sulphonal and paraldehyde. The former I employ somewhat largely, and al-

though it is but sparingly soluble, and although it acts somewhat tardily, yet its administration has, in my experience, generally been followed by good results. Moreover, I have found that it is possible gradually to reduce the dose of sulphonal after the habit of sleeplessness has once been broken. The question of hypnotics, however, formed the subject of debate at the meeting in Montreal, and it may perhaps be inadvisable to reopen the discussion in this direction, since at Montreal the various speakers said almost all that there was to be said concerning the employment of hypnotics.

It is somewhat difficult to draw a sharp line of distinction between the treatment of many of the symptoms of cirrhosis of the kidney and the treatment of one of the forms of uremia, since under the term uremia must be included a consideration not only of uremic symptoms of an acute and violent character, which constitute uremic convulsions, but also of a more chronic type, in which the symptoms frequently simulate those due to diseases of less severity; thus, as examples of chronic uremia must be mentioned the dyspeptic troubles which frequently seem to occur in the course of renal cirrhosis and may assume a severe type before its close, when vomiting and diarrhea may both become persistent and uncontrollable. As the distinction is therefore so difficult to make, I shall perhaps be pardoned for a gradual transition from the medicinal treatment of chronic nephritis to the treatment of uremia.

The treatment of dyspepsia is perhaps of greater importance in the early stages of renal cirrhosis, since there is very little doubt that prolonged attacks of dyspepsia may favor the onset of this disease. It is, I think, no mere coincidence that I have found a very large proportion of patients with symptoms of cirrhosis occurring amongst those who admit the existence of chronic dyspepsia from an early age, and frequently in connection with bad teeth. It is well known that patients who, either on account of defective teeth or from other conditions of their life, get into the habit of bolting their food suffer from dyspeptic troubles, and amongst these troubles must be reckoned the alteration in the character of the urine. Those who pass uric concretions frequently are also prone to exhibit indications of chronic renal changes, though in these cases possibly the albuminuria takes its origin in irritation of the kidney. Hence it becomes important to rectify any errors of diet, any errors of habit, or

any errors of digestive functions, if these are within the range of medicinal treatment. Sometimes benefit may be obtained from the use of the ordinary digestives, from the administration of pepsin and hydrochloric acid, from the employment of diluted hydrocyanic acid, or from the salicylate of bismuth or other bismuth preparations, but in advanced cases of the disease these remedies are generally powerless, and the symptom then has to be treated as one of uremia rather than as one of simple chronic dyspepsia.

Turning now to the treatment of acute uremia, the condition marked by convulsive seizures which may be repeated at frequent short intervals, the treatment naturally divides itself into two groups: (1) the treatment during the convulsion, and (2) the treatment during the intervals between the convulsions. During the convulsions various vaso-dilators have frequently been employed, and those which appear to have been most hopeful are those which act most promptly. Foremost stands nitrite of amyl, which can be administered by inhalation to an unconscious patient. Other nitrites and nitrous compounds have also been used, such as nitrite of sodium, nitroglycerin, either in the form of tabellæ or of the official solution of trinitrin. In my hands these have not given much encouragement. The duration of the convulsive seizure has not appeared to be reduced by their employment, nor has the frequency of the seizures been diminished, and although these remedies undoubtedly possess great power of lowering the blood-pressure by the dilatation of the smaller arteries, they seem to find their chief applicability in the relief of headache, or neuralgic symptoms which result from persistent high tension, and to be of comparatively little service, if any, in the treatment of uremic convulsions. The severity of an attack may sometimes be controlled by the inhalation of chloroform, but this must be used with considerable caution, since the heart is frequently weakened and the patients are therefore not fit subjects for the prolonged use of anesthetics. More hopeful is the treatment with purgatives or with diaphoretics, but in many cases of uremic convulsions one is tempted to defer the use of diaphoretic measures until the convulsions have ceased. Although the convulsions may succeed each other with great rapidity, the individual convulsion commonly does not last very much longer than the ordinary epileptic seizure, and it is therefore frequently impossible to

employ any remedy at all during the convulsive attack, and treatment accordingly has to be confined more purely to the subsequent coma.

For rapidity of action and for efficacy no remedy can compete with croton oil, which may be administered with great ease even to an unconscious patient, and it is the more desirable to employ a strong derivative of this nature on account of the comparative frequency with which uremic convulsions may be associated with symptoms of a hemiplegic type, in all probability dependent upon rupture of one of the cerebral vessels. Under such conditions, therefore, the value of any remedy which will speedily deplete the vessels and thus diminish the risks of hemorrhage can scarcely be overestimated. With uremic coma pending the action of croton oil, it is frequently advisable to endeavor to stimulate the action of the skin, and this may be effected in some instances by the use of a wet pack, or hot air, or vapor bath, as has been previously mentioned in connection with the treatment of dropsy. Even these measures, however, require to be used with great care, since it is not uncommon for it to be extremely difficult to excite the skin to act, and unless free diaphoresis is produced there is some likelihood of increasing the frequency of the uremic convulsions.

Perhaps the most debatable question connected with the treatment of uremia lies in the use of morphine or of opium. These remedies, more particularly the former, have been credited with the power of diminishing the frequency of uremic attacks, and it has been asserted that periods of special danger may be safely tided over by the employment of morphine injected hypodermically. On the other hand, numerous observers consider that there is great risk in the use of morphine in the treatment of uremic convulsions, and I must confess that I should prefer to treat either convulsions or coma by measures calculated to remove nitrogenous waste from the system rather than by measures which, while they quiet the nervous system, at the same time diminish the eliminative work of the kidney.

It will be noted that I have said nothing in this connection of the use of diuretics, and I have intentionally avoided mentioning them hitherto because the relief afforded is likely to be both slower and more uncertain than that which may result from either hydragogue purgatives or diaphoretic measures. Further, when patients are suffering from

uremic symptoms we have in that fact strong evidence that the kidney is not capable of performing efficient work, and therefore it seems rather an anachronism to employ stimulant remedies intended to promote the work of the kidney.

With uremic convulsions in chronic nephritis there is every probability that very little of the renal structure is capable of doing work, and this difference in the symptoms of acute uremia must be carefully contrasted with the condition of acute uremia occurring in connection with acute nephritis. In the latter, although the work of the kidney may be temporarily arrested owing to renal engorgement, there is fair ground for hoping that if this engorgement can be reduced for a time by relieving the engorged vessels through the eliminative action of the skin and the bowels, the normal circulation will once more be reestablished through the healthy portions of the kidney and the renal secretion will once more be resumed. With chronic nephritis, on the other hand, such hopes are likely to prove fallacious, unless this symptom occurs suddenly as the result of a subacute attack. There is, of course, very little room for discussion connected with the dietetic treatment of uremia after it assumes the acute type, since patients are so frequently reduced to the condition of coma, during which it is difficult to do otherwise than to employ liquid forms of diet. This perhaps forms the chief reason for the use of milk and of beef tea in nephritis, unless complicated by subacute attacks; but when we are dealing with a case of coma or with a case marked by frequent convulsions, we must simply do the best we can, and the best, under such circumstances, must consist in a liquid form of dietary.

In connection with the benefit to be derived from repeated tapping and venesection in chronic kidney disease, especially in uremia, a recent paper and discussion at the Royal Medico-Chirurgical Society becomes of interest. The writer of the paper maintained that in cases of edema it was possible and desirable to keep the legs down and to thus attempt to drain fluid from the trunk and upper limbs, and in the course of the discussion he further explained his belief that it was possible by these means to remove accumulation of fluid from the pleural or peritoneal cavity. He laid great stress upon bringing the fluid down to the feet by a slanting bed. I should much like to hear the experience of others regarding this

change of posture and treatment, since although one has frequently seen much relief follow the removal of fluid from the legs by Southey's tubes or by small incisions, I have not in any case witnessed the draining of the pleural cavity which would be attributed to such an alteration in the posture of the patient. One has often seen patients improve in a marked way after the removal of fluid from the extremities, but by posture alone I believe it is quite impossible to drain fluid from the peritoneum, the pericardium, or the pleura.

In conclusion I venture to think that the subjects which may most usefully be discussed are:

1. The question of expatriation, of occupation, and of the administration of alcohol.
2. The possibility of limitation of albuminuria by the administration of drugs.
3. The treatment of acute uremia by bleeding, by nitrites, by morphine, and by intravenous injections of water, or by transfusion.
4. The treatment of chronic uremia by nitrites or by the separate treatment of the individual symptoms of chronic uremia.

#### THE TREATMENT OF CORYZA.

In the *Revue de Thérapeutique Médico-Chirurgicale* of May 15, 1898, GALOIS is credited with giving the following treatment in coryza. As abortive treatment frequent inhalation of the vapor of tincture of iodine, cologne water or chloroform, or the following prescription:

- ℞ Pure carbolic acid,  
Ammoniac, of each 1 drachm;  
Alcohol (90-per-cent.), 2½ drachms;  
Distilled water, ¼ ounce.

Every half hour place a few drops on a handkerchief and inhale.

Or, on the first day, every two or three hours the following powder may be snuffed up the nose:

- ℞ Hydrochlorate of cocaine, 2 grains;  
Boric acid, 3 drachms;  
Salol, 3 drachms;  
Menthol, 2 grains.

Or,

- ℞ Salol, 1 drachm;  
Boric acid, 6 drachms;  
Tannin, 15 grains;  
Salicylic acid, 15 grains.

To allay irritation of nasal orifices the following salve may be used:

- ℞ Subnitrate of bismuth, 1 drachm;  
Vaselin and lanolin, each 1 drachm.

As a palliative treatment the congestion may be relieved by atomization into the nostrils of the following solution:

- ℞ Hydrochlorate of cocaine, 15 grains;  
Distilled water, 3 ounces.

Or a pinch of the following powder may be snuffed up the nose every three hours:

- ℞ Hydrochlorate of cocaine, 15 grains;  
Subnitrate of bismuth,  
Milk sugar, of each 3 drachms.

Should the patient be very susceptible to cocaine, menthol may replace it, and the following may be injected into the nostril every two hours:

- ℞ Menthol, 2 grains;  
Sterilized olive oil, 2½ drachms.

Or this ointment may be inserted into the nostril:

- ℞ Menthol, 3 grains;  
Vaselin and lanolin, of each 1 drachm.

During the acute stage care should be taken not to use a syringe for washing out the nostril, lest the Eustachian tube be infected. After this acute stage is passed and the muco-purulent secretion is present, the nasal cavities may be washed out with a four-per-cent. solution of boric acid, or a 1:400 solution of salicylate of sodium. In the early stages it may be wise to use hot foot-baths and antipyrin to relieve the neuralgia, headache, and febrile involvement. Should a young infant be attacked by severe cold it is not safe to use cocaine, but a few drops of a solution of menthol of the strength of 15 grains to 1½ ounces of sterilized olive oil should be dropped into the nostrils. A four-per-cent. solution of bicarbonate of sodium may be used to dissolve and loosen secretion after it has set in freely. In case of syphilitic coryza in the new-born, after the nostrils have been well cleansed, the following ointment should be inserted:

- ℞ Calomel, 15 grains;  
Vaselin and lanolin, of each 1 drachm.

Mercurial ointment should also be well rubbed into the thin portions of the skin every day, and the above ointment should be inserted into the nostrils not less frequently than twice a day.

# The Therapeutic Gazette

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## Leading Articles.

### THE ANTITOXIN PATENT.

In the August issue of the THERAPEUTIC GAZETTE we called attention to the fact that Emil Behring had applied for and been granted a patent upon the antitoxin of diphtheria and pointed out some of the reasons why such a patent should not be granted from the point of ethics and justice, and because its award to Behring distinctly perverts the intentions upon which we believe the Patent Office is based. The medical journals of the United States since then have come out in universal opposition to the patent, and medical bodies have expressed their views to the effect that our position was correct. The following resolutions passed by the Academy of Medicine of Nashville, Tenn., indicate the feeling of all right-minded medical men in regard to this important matter:

NASHVILLE, TENN., Sept. 13, 1898.

The United States Patent Office having granted to Emil Behring letters patent for the exclusive manufacture of diphtheria antitoxin, the Nashville Academy of Medicine declare that this grant is not warranted by Professor Behring's connection with the discovery of this product, his share in the discovery thereof not being greater than that of several other investigators.

Diphtheria antitoxin has been manufactured in the United States by various firms and also by State boards of health for some years without hindrance or attempt at restraint. The product manufactured under the name of

Behring has been proven inferior to the serums of American producers, and if the stimulus of competition be removed by the establishment of a monopoly, the tendency will be rather toward a deterioration of this product than toward its improvement.

The Academy therefore protests that the granting of letters patent in this case is detrimental to the best interests of science, the medical profession, and the thousands of sufferers from diphtheria, and that as a matter of common justice the grant of patent rights should be revoked.

The Academy further directs that this protest shall be furnished to the medical journals of this country for publication.

### THE ACTION OF SALINE PURGATIVES.

Since the time of the classical researches of Hay and of Rutherford upon the action of purgatives, there have not been many papers of very great importance upon this subject, although from time to time minor researches concerning it have been published by Hofmeister, Hedin, Höver, and others. It will be remembered that Hay decided, as a result of his studies, that saline purgatives always excite more or less secretion from the alimentary canal and that low diffusibility of the salt impedes the absorption of the secreted fluid. The practical import of his studies was that with the average saline it was wise to give it in concentrated solution, when a free watery evacuation was desired, since its power to purge disappears to a great extent with the dilution of the solution.

A still more recent study of considerable interest has just been published by Wallace and Cushney in the *American Journal of Physiology* upon the subject of intestinal absorption and saline cathartics. These authors first point out that Heidenhain came to the conclusion that two distinct factors were involved in the action of salines, namely, the osmotic influence of the solution and the physiological activity of the bowel. On the other hand, Hamburger, while accepting the theory of osmotic action, has attempted to show that the physiological activity, so-called, is really a combination of certain physiological forces. Recent researches which have been made indicate that red blood cells and their tissues imbibe solutions of certain salts more freely than others, and it is in this line that most of Wallace and Cushney's work has been carried out. They noted at the beginning of their research that most of the saline cathartics depend upon the anion, or acid constituent of the salt, for their purgative properties. Thus, it is a well known fact that sodium sulphate, potassium tartrate, sodium phosphate and similar substances act as purgatives, while sodium chloride, potassium



chloride, etc., do not possess this action to any great degree. When we come to the magnesium salts it is found that not only the anion or acid constituent determines the purgative property, but the cation or basic constituent also possesses a purgative property, and this is indicated by the fact that magnesium chloride and magnesium carbonate possess purgative action, although they do not contain sulphates or tartrates.

The method of experimentation resorted to by these investigators need not be discussed here, as the details of the method are purely technical; suffice it to state that their ability to do original work, coupled with their studies of other investigators, has enabled them to devise means which are distinctly reliable. Experimenting with a large number of substances they found that some were rapidly absorbed in the stomach and small intestine, while others were slowly absorbed and reached the large intestine before absorption took place, the result being that such salts not only acted by an influence which they might exert upon the intestine itself, but supplied the intestinal contents with so large a quantity of liquid that the fecal matter was fluid and therefore more readily passed. To express it in other words, the whole of the solutions of sodium chloride and sodium phthalate was absorbed in the course of its passage through the stomach and small intestine, while three-fourths of the citrate and sulphate solutions reached the large intestine. It is the sulphates which are largely found in the natural purgative waters, and as many of these waters are dilute solutions it would seem probable that their purgative properties depend largely upon their not being absorbed from the alimentary canal. Further, dilute solutions of the saline catharics are not only slowly absorbed themselves, but they retard the absorption of fluid from the stomach and small intestine and so aid in a secondary manner in the production of fluid stools. Further than this, some natural mineral waters contain in addition to their purgative salts insoluble calcium salts which still further tend to retard absorption in the intestine. It is evident, therefore, that saline purgatives act in three ways: First, by causing an outpouring of fluid from the surrounding tissues into the intestinal canal; second, by increasing the liquid in the intestinal canal by their presence; and third, by preventing the absorption of other fluids which would otherwise be taken up into the general tissues.

#### THE INFLUENCE OF DRUGS UPON BILIARY SECRETION.

Readers of the THERAPEUTIC GAZETTE will remember a research which was published by Pfaff and Balch, of Harvard University, about a year ago in the *Journal of Experimental Medicine* upon the influence of various drugs upon the secretion of bile, the subject of the experiment being a woman with a biliary fistula. These investigators found, it will be remembered, that the drugs which are ordinarily supposed to possess cholagogue properties exercised practically no influence over biliary secretion, the greatest flow of bile being caused by the ingestion by the patient of ox-gall. In the *British Medical Journal* of June 25, 1898, a somewhat similar, but less exhaustive, paper is published by Dr. William Bain as a contribution from the Physiological Laboratory of St. Thomas' Hospital. After pointing out the difficulties in studying the influence of drugs upon bile, both when animals and human beings are used as the subjects of study, he records his case, which was that of a man aged forty-nine who was operated upon for gall bladder disease. He then details the various means which were taken for collecting the bile as it was secreted, the methods which he resorted to in its analysis, and then gives a series of cases which have been previously recorded.

It will be remembered that there exists an extraordinary discrepancy in result upon the part of all those who have so far studied this interesting question. Some of the investigators found that drugs which had no reputation among medical men as cholagogues caused a profuse flow of bile, as for example Battastini and Marfori, who found *santonin* to be the best cholagogue. In Bain's research he studied the effects of a number of mineral waters derived from Harrowgate in England, as the Kissingen Spa at Harrowgate, and from Carlsbad, Bohemia. He also studied the effect of hot water taken before breakfast, *euonymin*, *iridin*, *benzoate of sodium*, *salicylate of sodium*, and two derivatives of *podophyllum*, namely, *podophyllum-resin* and *podophyllo-toxin*. At the same time that the bile was examined an analysis of the urine was made. Bain found in his patient that the average amount of bile secreted in twenty-four hours in a small man of medium weight approximates 775 cubic centimeters, which is about the same as that estimated by Copeman and Winston, although slightly in excess

of their quantity. It is also considerably in excess of that noted by Pfaff and Balch, who found that the average flow was 514 cubic centimeters. It is, however, proper to remember that Bain's patient took ox-gall daily.

In concluding his paper Bain tells us that more bile is secreted during the day than at night, and that he finds that the old sulphur spring water of Harrowgate, Carlsbad water, euonymin, benzoate and salicylate of sodium and the water of the Kissingen Spa at Harrowgate all increase biliary flow, that podophyllin-resin and iridin increase the proportion of bile solids without increasing the quantity of bile, and that hot water and soda water in pint doses do not seem to increase the biliary secretion. His urinary studies support the view already enunciated by many investigators that the salicylate of sodium increases the excretion of uric acid in the urine. These studies are of interest in that they are confirmatory of a number of views generally held by practising physicians. They explain the beneficial effects of Carlsbad water, of podophyllin and similar substances in cases which are described as being those of hepatic torpor, and they also indicate that the beneficial effects obtained from drinking hot water on an empty stomach depend rather upon the stimulant effect of the heat on the mucous membrane of this viscus and the influence on the portal circulation than upon any direct effect exercised upon the cells of the liver.

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*THE EFFECT OF REST AND EXERCISE  
UPON THE PERCENTAGE OF HEMO-  
GLOBIN IN ANEMIA.*

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Under this attractive title a recent contribution has been made to this very important subject, a subject which has received far too little attention from those physicians who recognize the fact that other means than the mere administration of drugs should be resorted to for the cure of disease. Many of our readers probably remember that about two years ago Dr. J. K. Mitchell, of Philadelphia, published some studies on the influence of massage upon the various constituents of the blood. Since then comparatively little work has been done upon this subject, although his paper was to a large extent in a new field. In this connection, therefore, a communication to the *British Medical Journal* of June 25, 1898, by Edgecombe, is of value.

It has been known to physiologists and to clinicians for many years that there are distinct diurnal variations in the blood of

healthy persons both in regard to the hemoglobin and the various corpuscles. Thus Oliver and Edgecombe in 1896 recorded the fact that the hemoglobin might vary as much as a little over seven per cent. in twenty-four hours, that the volume of the corpuscles might vary  $4\frac{1}{2}$  per cent., and that a decrease usually followed the day hours, perhaps because of the dilution of the blood by fluids ingested during the day, but more probably by reason of the wear and tear of increased activity during the period in which the patient is awake. In confirmation of this view Edgecombe has made some interesting studies in which he has proved that when a person works during the night and rests during the day a reverse process takes place, so that instead of his highest percentage of corpuscles and hemoglobin being in the morning, the lowest percentage occurs at this time if the patient has worked all night. He further found that exercise produces a very distinct influence and that active exercise increases the extent of the day fall, but also of the night rise, in blood value. He then goes on to point out the bearing of his experiments, which show that there is a physiological foundation for the well known value of rest in bed in the treatment of anemia; and while he found that moderate active exercise was beneficial to the blood, in that it caused a slight overproduction of hemoglobin in healthy individuals, in unhealthy persons whose powers of blood generation is deficient he is convinced that rest accompanied by nourishing diet and passive exercise used in moderation is an exceedingly important factor in producing a cure, and it would seem to us that the value of the rest is in direct proportion to the severity of the anemia which is present. All these new experiments emphasize Dr. Weir Mitchell's clinical insight in introducing the "Rest Cure."

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*THE PREVENTION OF CAMP DISEASES.*

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Plutarch states that Cyrus always carried with him water of a certain spring, which he drank from a golden vessel after having it boiled. This naturally suggests that not only were the huge armies which this monarch commanded subject to diseases incident to the use of impure water, but that the sanitary science of the day had reached a much higher state of development than is commonly accredited to it. Certain it is that could the soldier be induced to adopt a pre-

caution much less onerous than that taken by Cyrus—*i. e.*, the boiling or filtering of any apparently clean water—typhoid would practically disappear from the army.

The typhoid fever from which the army has suffered in all its large camps was taken into the systems of the soldiers with the drinking-water. On this point there can be no doubt, though in individual instances the disease may have been contracted from milk as an indirect water contamination, or among doctors and hospital attendants from neglect to disinfect the hands after handling patients afflicted with the disease.

No bacteriological or chemical examination can prove the purity of water in so far as the typhoid infection is concerned, and it is safe to say that no spring or well within an area of five miles of a camp in which typhoid is endemic should be trusted twenty-four hours after such a camp has been pitched. The means of contamination and the probability of its occurring are so obvious as to require no detailed mention.

As long as the sanitary inspectors of camps hold that the water supplied to the men is pure and safe because, for instance, it comes from an area in which there are no houses, and hence should be pure, typhoid once started in camp will spread.

All water should be regarded as dangerous until it is either boiled or filtered; in this belief the soldier should be trained. Boiling is troublesome, often impossible. Filtering is easily accomplished and is always practicable during periods of encampment. When there are many troops assembled in one camp, and the water is piped to the various regiments, the Government could and should establish such a system of sedimentation and sand filtration as has been shown to be an efficient remedy against typhoid. When this is not practicable, there are small filters which render the water absolutely sterile and which, if issued to each company together with a barrel or other reservoir for storage, would at the expense of one man's attention secure an abundant supply of absolutely wholesome water. These filters could also be carried on the march, and during rest periods could render safe the supply from neighboring springs.

The first step towards crushing out the present epidemic of typhoid and toward preventing a recurrence of the disease with each large encampment is absolutely to distrust the drinking-water and to subject all of it to a sterilizing process.

As an occasional means of typhoid infection, perhaps even a frequent means when there are many walking about with latent forms of the fever, may be mentioned the flies, which in Tampa swarmed over everything. The immediate and habitual covering of all dejecta with earth tended to lessen if not entirely to abolish this danger.

Gastro-enteritis—though perhaps this is a misnomer for the anorexia, cramps and diarrhea which constitute the commonest forms of sickness to which the soldier is subject—is usually directly traceable to drinking, while hot and tired, large quantities of cold liquid, often beer, to eating ill cooked or ill-chosen rations, including under this caption raw fruit, to sudden chilling of the surface.

The regimental canteen has proven a distinctly crippling factor in Southern camps, though its action in Western posts may, as has been claimed, be beneficent. It, together with every saloon and soft drink shop within reach of the army, should be closed to the soldier, and the pay-day drunk, diverting in itself, but a good feeder to the sick call, would then be abolished.

The food which the men receive should be inspected by the officers, particularly the company officers and those of the medical staff. It is probable that as the volunteer army now stands not one company cook out of five had any experience in the culinary art previous to the breaking out of this war, and that not one out of eight could on his present merits preside over the kitchen of a third-class eating house. It might be a serviceable reform to have the officers' tables served from the company messes; it certainly would be a great help to have the cooks regularly and carefully instructed in the rudiments of their art.

Raw fruit, even when fresh and ripe, is like beer so fermentable and so likely to cause diarrhea that its consumption should be avoided.

As to the avoidance of surface chilling, the belly-band, which promised much, has as a rule not proven its claims. Some oversight on the part of the company officers would accomplish much in this direction.

It is of cardinal importance that we should clearly realize that the means by which most of the camp diseases may be avoided are well understood and are so simple and practicable that they may be efficiently carried out, provided a sufficient amount of energy is displayed by the company officers and by the regimental doctors.

## Reports on Therapeutic Progress

### AMYLOLYTIC FERMENTS.

In *The Lancet* of May 7, 1898, WINGRAVE of London tells us that personal necessity for a starch cement having suggested a few experiments with several easily obtainable preparations, the experience so gained may prove helpful to others in their selection of a ferment from a group which clinically receives less attention than the proteolytic does.

Starch ferments may be divided into two chief kinds, according to their sources: (*a*) animal, prepared from glands—ptyalin (salivary), amylopsin (pancreas); and (*b*) vegetable or diastatic. The preparation of group *a* is not only attended with some technical difficulty, but the products are too unstable and unreliable to become generally available. Not so those of the second group. These, for the most part, are easily obtained, stable, reliable in action, and economical in price. The best known examples are malt diastase and taka-diastase. Malt diastase occurs in markedly varying proportions in all extracts of malt (moist and dry), while taka-diastase is prepared by making a cultivation of *Eurotium oryzae* (of the *Aspergillus* group) on hydrolyzed wheat bran. The diastatic influence is extracted with water and separated by evaporation as a scaly powder, which is readily soluble in water and possesses well-marked hydrolytic power. Many samples were tested against normal saliva, and the following three examples were eventually selected as fair representatives of the second group: (1) Kepler's malt extract (moist); (2) Wilcox's desiccated malt extract (dry); (3) taka-diastase (dry). These were tested chemically and clinically.

It must be borne in mind that the condition of all test-tube experiments must differ considerably from normal and morbid digestive changes, and, however carefully carried out, the results must only be judged as approximate. The first series of trials was made in order to ascertain which of the preparations possessed the greatest amount of diastatic power. It would be tedious to detail them all, but the following are illustrative and can be done by any one:

First experiment (test-tube): Twenty grains of malt extract (moist), five grains of malt extract (dry), and one grain of taka-diastase were mixed respectively with 100 minims of a five-per-cent. solution of arrowroot, neutral-

ized and placed in a water-bath at 38° C. At the end of twenty minutes the malt extract gave erythro-dextrin and a trace of maltose, the taka-diastase chiefly maltose and soluble starch, and the desiccated malt chiefly soluble starch. (Saliva gave soluble starch in excess with trace of maltose.)

Second experiment: A thick paste consisting of three ounces of arrowroot (representing a full meal of carbohydrates), boiled with fifteen ounces of water, cooled to 40° C. and rendered faintly alkaline, was placed in a flask with 300 grains of Kepler's malt extract, 150 grains of desiccated malt, and 15 grains of taka-diastase, respectively. The flasks were placed in a water-bath, kept at a temperature of 38° C., and shaken every three minutes. At the end of five minutes the Kepler's malt extract and desiccated malt showed no change, while the taka-diastase could readily be shaken, the paste being broken up, and about one-third appeared fluid. In ten minutes it was only lumpy in the center, and in thirty minutes the lumps had quite disappeared, while the Kepler's malt extract and desiccated malt were nearly as gelatinous as at first. It was found that the products of the taka-diastase action were soluble starch, maltose, and erythro-dextrin, the original arrowroot being entirely changed, while the Kepler's malt extract and desiccated malt only afforded small quantities of sugar, soluble starch, and dextrin. This test indicates that taka-diastase possesses greater hydrolytic power than either of the malt extracts, which may be due either to a higher ferment potential or to a greater range of action under disadvantageous and artificial conditions, such as accumulation of sugar and intermediate products, etc. It was further observed that increase of the temperature up to 50° C. increased the action of the malt extract.

Having considered the behavior of these ferments under what might be termed favorable conditions, the next point was to watch them under morbid influences similar to those occurring in so-called dyspeptics. During pyrosis, lactic, acetic and butyric acids are present in proportions variable yet minute. A sufficiency of each acid was added to starch solutions to produce the well known acid taste, and the solutions were then watched under the same conditions of temperature as in the other tests. In each case the starch was converted, after three times the duration of the exposure used in the other tests, into soluble starch and slightly

to erythrodextrin, but sugar only appeared in very small quantities after three to four hours. The addition of neutral peptones and proteids did not appear to exert any influence. The presence of 0.2 per cent. of hydrochloric acid after exposure for twenty minutes permanently killed all the ferments, but for a less period activity was restored on neutralization. Quinine dissolved in citric acid did not inhibit unless the strength exceeded 0.5 per cent., a point which is of clinical interest, since the author's experience has shown that small doses of one-half to one grain undoubtedly act beneficially in pyrosis. The ferments were then tested with raw starch as represented by scraped fresh potatoes, upon which, like saliva, they had no hydrolytic influence whatever.

Having seen that butyric, acetic and lactic acid retarded the conversion of starch into sugar, their neutralization was obviously necessarily essential to a satisfactory ferment action in cases of pyrosis. A preliminary preparation of the stomach by means of small doses of carbonate of magnesia and chalk in the form of lozenges, or sodium carbonate dissolved in chloroform-water, proved effectual. For it must be borne in mind that, normally, starch conversion is carried on in the stomach, not in the mouth, and it has every opportunity of being completed in the stomach, since hydrochloric acid may not appear free for from half to one hour. But it is extremely doubtful what proportion of work the stomach and intestines respectively perform in a person living at high tension with an irritable digestive tract. As hydrochloric acid is necessary for exciting and maintaining proteolysis, so alkalies are essential for proper starch conversion, and it is almost useless to attempt the digestion of starch in cases of pyrosis without their aid. It is probable that in a very high percentage of cases described as dyspeptic the starch conversion is mainly at fault, and consequently the case shows no improvement under pepsin treatment.

Clinical observation supported the test-tube evidence. The dry malt extract not only acted as a powerful sialagogue, being a pleasant substitute for jam when eaten with bread and butter, but the after-effect undoubtedly gave evidence of a greater diastatic power than the artificial tests led one to expect. The fluid malt extract seemed to increase the pyrosis to such an extent that it had to be discontinued in several cases, while in others the excessive sweetness was

tolerated and its diastatic action seemed satisfactory. Still the excess of sugar and its bulk more than counterbalanced its diastatic value. Taka-diastrase, on the other hand, being free from sugar, is entirely without these disadvantages and its action is unhampered.

The conclusions may thus be briefly summarized: (1) That of the commercial starch or diastatic ferments taka-diastrase is apparently the most powerful and the most reliable, since it is more rapid in its action—*i.e.*, it will convert a larger amount in a given time than will any other amylolytic ferment. (2) That organic acids, such as butyric, acetic, and lactic, the acids most frequently present in pyrosis, etc., do retard but do not permanently kill the ferments, and when neutralized are harmless; that taka-diastrase seems to be less influenced by them, and also by tea, coffee and alcohol, than are saliva and malt extracts. (3) That hydrochloric and other mineral acids quickly stop and permanently destroy all the starch ferments, if allowed sufficient time and if present in sufficient quantities. (4) That taka-diastrase and malt diastase have, like ptyalin, no action upon cellulose (uncooked starch).

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#### THE USE OF NITROUS OXIDE GAS AND OXYGEN DURING SURGICAL OPERATIONS.

BELLAMY GARDNER writes on this topic in the *British Medical Journal* of April 30, 1898. He thinks that so many advantages might be claimed for the introduction of an anesthetic agent which would combine the four attributes of safety, a rapid unconsciousness, muscular relaxation, and freedom from after-effects, that a few further remarks on the results which are at present attainable with nitrous oxide gas when mixed with suitable proportions of oxygen may prove of interest as offering the addition to our list of an inhalation less incapacitating than chloroform and ether, but scarcely inferior in value for many surgical procedures of moderate gravity.

The question at once arises, Under what conditions will such an anesthetic be of special value?

1. A complete examination of the pelvis and abdomen is often needed before a diagnosis can be arrived at in cases which may require ether for an operation shortly afterwards; on these occasions, without any special preparation, gas and oxygen will prove a most convenient help.

2. As ether is very safe, in modern days it is no exception to find patients who have inhaled it several times, but suffer considerably from after-effects; to these the substitution of a tasteless gas during a surgical operation is a great relief.

3. Many operations require some further painful procedure during convalescence, the removal of drainage tubes, the moving of stiffened joints, the reopening of a wound for hemorrhage or redressing; in these it is particularly desirable not to upset the patient's digestion by a second dose of ether if nitrous oxide can be made to rise to the occasion.

The apparatus invented by Dr. Frederic Hewitt for use in dental practise is adaptable to surgical cases after a slight enlargement of the oxygen apertures in the mixing chamber, from ten to twenty per cent. of oxygen being required when the face-piece is kept continuously applied. About fifty gallons of nitrous oxide and seven or eight gallons of oxygen are inhaled on the average during each quarter of an hour's narcosis. Beginning with two or three per cent. of oxygen the patient inspires the gases for five or six breaths, and by means of a dial plate the oxygen is then increased in amount, according to the depth and rate of breathing and the color of the ears and face.

We know exactly the symptoms of asphyxia which nitrous oxide given alone produces—namely, cyanosis, jerky, rapid breathing, twitching of the limbs, and dilated pupils. These objectionable results are avoided by the presence of oxygen, and by means of experience in the use of gas alone the amount of oxygen required in each case is discernible the moment respiration tends to vary at all from that of normal softly snoring sleep. Clinically, if the breathing grows faster and deeper and color a trifle dusky, more oxygen is wanted; if quieter and slower, the oxygen must be reduced.

Let us now inquire what type of anesthesia is produced, and the symptoms observable during the narcosis. The color is normal, the breathing of a softly snoring type, not so stertorous as with ether, not so quiet as under chloroform; the pulse is strong, full, and regular; the abdomen is generally quite flaccid, but the limbs may show a slight tendency to rigidity; though the legs will offer no resistance to being placed in the lithotomy position, they may show slight reflexes from time to time. The blood from an incision during this anesthesia may appear somewhat venous at intervals; this is not, however, due

to congestion, but to the fact that nitrous oxide to some extent replaces oxygen in the hemoglobin and the purple color of the new product becomes evident in the flowing blood, even while the facial color is healthy in appearance.

Alcoholic patients are not good subjects, nor are very powerful athletic men, but most women and well nourished persons generally can be regarded as suitable cases, while those who are weakened by illness often take the gases remarkably well.

In the writer's first article on this subject, in *The Lancet* of June 12, 1897, he gave an account of the uses to which he had applied this anesthetic during the previous two years. In the August number of the *British Gynecological Journal*, 1897, he gave a further account of its suitability for certain cases in that branch of practise, citing, in each paper, several instances of its prolonged inhalation. Since that time he has had notes of a number of successful administrations lasting from fifteen to twenty minutes, and in these he has not observed any symptoms which would indicate that the anesthesia has any more definite limits with regard to time than that of chloroform or ether.

The recovery to consciousness after removal of the face-piece has been very rapid, often complete in two to three minutes, and sickness has been conspicuous by its absence.

Such operations as the removal of a cystic adenoma from the breast, dilatation of the cervix uteri, removal of an inflamed hymen, reopening of a lumbar renal incision, opening and curetting of a large mammary abscess, and several cures for varicocele among the number, will illustrate the usefulness to which these gases may attain.

The writer thinks the safety of nitrous oxide and oxygen is greater than that of the former gas alone—the safest of all known anesthetics, for during the past eight years its adoption in dental practise has been rapidly becoming general, and no fatality has ever been recorded under its influence.

#### THE TREATMENT OF ANGINA PECTORIS.

LYON writes in the *Revue de Thérapeutique Médico-Chirurgicale* on this theme. For the treatment of the attack itself, rest, the inhalation of five or six drops of nitrite of amyl and a hypodermic injection of  $\frac{1}{16}$  of a grain of nitroglycerin are to be resorted to. To overcome the syncope ether, caffeine or

camphorated oil, the latter in ten-per-cent. strength, are to be employed. Friction should also be applied to the limbs, and, should there be evidences of pulmonary involvement, venesection must be practised, while if respiration fails rhythmic tractions of the tongue must be performed. Injections of morphine are contraindicated in such cases. In those cases in which the neuritis is apparently due to involvement of the cardiac plexus, morphine may be admissible. Fifteen- to forty-five-grain doses of antipyrin may be given by the stomach or by rectal injection, or smaller amounts of phenacetine may be used, and to the point of pain chloride of ethyl spray may be applied.

For the treatment between the attacks care should be taken that exercise does not immediately follow a meal and that sudden motions are avoided. Mild exercise should be taken, but cold baths are not advisable. Smoking should be refrained from. Massage and friction of the right chest with alcoholic liquids may be resorted to. In regard to the diet, the patient should refrain from all rich dishes and fermented drinks and tea, coffee, and alcohol, and should live largely upon milk, eggs, green vegetables, and properly cooked fresh meats. Water should be taken at each meal. For two or three weeks out of every month 30 or 40 grains of iodide of potassium should be taken a day, and for the remaining days of the month  $\frac{1}{10}$  of a grain of nitroglycerin may be similarly taken. Sometimes it is wise to increase the dose of the latter drug. It is also suggested that counter-irritation should be applied in the form of a hot iron over the precordial region every eight days.

Where there is feebleness of the heart due to myocarditis a combination of digitalis and nitroglycerin is of value.

For the treatment of false angina or cardialgia the medication should consist in nitrite of amyl, antipyrin, bromide of potassium, and applications of ether or chloride of ethyl vapor to the pericardium.

A useful prescription is one composed of Hoffmann's anodyne, tincture of valerian, tincture of digitalis, and tincture of belladonna, of each one drachm. Ten to twenty drops of this are taken at the beginning of the attack.

For the treatment of the cause hydrotherapy is to be resorted to in the form of hot baths; faradization of the painful region and the local application of cold by chloride of methyl spray is useful. Should the attack

be due to hysteria the same treatment may be instituted. If to dyspepsia, a milk diet, with hydrotherapy, is useful. If due to the excessive use of tobacco, this drug must be prohibited and nitroglycerin given as in the case of coronary angina. In the angina due to gout, diabetes, and malaria, relief must be given by remedying as far as possible the arteriosclerosis, chiefly by the use of the iodides.

#### *A CASE OF CRETINISM AFTER FIFTEEN MONTHS' USE OF THYROID EXTRACT.*

In the *Medical Review* of May 7, 1898, TUTTLE records the case of a girl suffering from cretinism who began taking thyroids November 30, 1896, at the rate of one grain a day. This produced vomiting, and the dose was reduced to half a grain per day for ten days, on which dosage her stomach did not rebel. Then on increasing to one grain per day all went well. From this time to December 1, 1897, the writer continued the same dose for reasons given later. Beginning then and until February 1, 1898, she took one grain three times a day, and since then she has taken two grains three times a day. Parke, Davis & Co.'s preparation of dried thyroids has been used throughout with much satisfaction. Before beginning treatment the patient had some bowing of the legs and bending of the spine. Just at this time the writer found an interesting report, with photographs, of two adolescent cretins, approximately the age of this one, twenty-four and twenty-two years old, in whom these early deformities had markedly increased while under thyroid treatment, and during the first efforts of walking. In one of these cases the deformity became so great as almost to cripple her. These reports were by John Thomson, of Edinburgh, and he suggested the resemblance of the symptoms to those of rickets, and advised three prophylactic points: smaller doses of thyroids, an excessive nourishing diet, and avoidance of walking as far as practicable. The writer has tried to follow this advice as much as possible, and yet with it the scoliosis has increased, and also the bending of the legs. During the last four months she seemed at a standstill as regards her improvement, so, notwithstanding the softened bones, the writer increased the dose. She has a very large appetite and does not walk much, but stands by the aid of some stationary object most of the time.

The changes we look for are conveniently grouped under two heads: (1) physical, and (2) mental.

1. The height has increased three and a half inches, but this all took place during the first nine months, as she has grown none since September, 1897. With this growth, the femora and tibiae being bent, and the scoliosis more marked, a larger actual increase in length has probably taken place. Typical changes have taken place in the small bones of the hands and feet, the whole hand and foot, and especially the fingers and toes, becoming much larger and more slender, before treatment being fat and stubby. Indeed, one of the first symptoms noticed by the mother was the necessity of getting her larger-sized shoes, the feet outgrowing a pair before they were worn out. The anterior fontanel, which was wide open at the beginning, is now tightly closed, having become so after about eleven months. In the meantime the head has increased in all its measurements one-half inch, around forehead, from meatus to meatus, and from occiput to root of nose. The circumference of the neck has decreased three-fourths inch, the chest is virtually the same, while the abdominal girth is less by one inch. The teeth are still bad, seeming to be made up partly of the milk and partly the permanent set. No new ones have been cut and no old ones lost during treatment.

The general appearance of the child has changed considerably, and this took place mostly in the first half of the treatment. Her tongue has diminished to normal size and can be kept in her mouth; the lips and bridge of nose are thin, and the eyes wider open. The supraclavicular pads have about disappeared.

She lost weight rapidly during the first six months, and really got to a degree emaciated, but since then she has regained her normal flesh, now weighing forty-one pounds, a gain since beginning of seven pounds, and appears much healthier.

The skin is loose and elastic and has not the thickened feeling it had. The hair of the head has grown freely and seems more normal than it did. In August, 1897, the mammary glands began to develop, and within a month a few coarse pubic hairs appeared.

The most marked change in any of the functions is in the bowels. Before treatment she was obstinately constipated, requiring castor oil twice a week, but since early in the use of the thyroids the bowels have acted naturally almost daily. Another change for

the better is in her ability to stand the hot weather of summer. Each summer, until the last, she has been seriously sick during the excessive heat, so that her mother always dreaded losing her; but last summer she kept perfectly well throughout, bearing the heat as well as the normal members of her family.

After four months of the use of thyroids she first began to walk, an act which she had not learned in seventeen years. She has not improved much in this function since, although she walks some, like a child first learning; but this is partly due to discouraging the mother from urging her.

The mental improvement is not so encouraging. There is a distinct change, but not a great gain. She has changed from a quiet, listless child, to a noisy, mischievous girl, making her care decidedly more difficult. She knows persons and things better than previously, and understands spoken language more, but her powers of expression are still very meager, and her vocabulary small. This can be partially explained by the lack of teaching and training efforts in her surroundings.

Taken all in all, Tuttle thinks her improvement seems to be fairly up to that of other adolescent cretins reported, and will try what another year's feeding on thyroids will produce in the way of interesting changes in her physical and mental state.

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#### CERTAIN POINTS OF INTEREST IN PHTHISIS.

H. P. LOOMIS sums up many interesting points concerning phthisis in the *Medical Record* of May 21, 1898. It is not of the well known methods of treating phthisis that the writer speaks at first, but of the present status of a new line which will hold a prominent place in the next two years—namely, the serum treatment.

Every one is familiar with the fact that, long before the discovery of diphtheria antitoxin, investigators in various countries had been experimenting with the products of the growth of the tubercle bacillus, Koch's tuberculin being one outcome of this line of work. It was in the media changed by the growth, and loaded with the product thrown off by the bacillus in its metabolism, that the antitoxin for the arrest of phthisis was sought.

The discovery of a serum which had antitoxic properties in diphtheria stimulated a new line of research in reference to phthisis, and many well known investigators through-



out the world are at this moment endeavoring to obtain a serum which, when injected into man, will antagonize the growth, protect against the action of the bacilli, and finally destroy them in the body. The majority of scientists are now working, not with the media on which bacilli grow, but with the body of the bacillus itself—the protoplasm which is contained within the cell.

It is believed that this cell body of the bacillus either contains or elaborates by its cell activity three substances: a fever-producing principle, a general toxin which circulates in the blood of the phthisical patient, and a poison which acts locally and causes the well known lesion of the tuberculous inflammation—coagulation necrosis. Up to the present time the first and last properties only have been isolated; the second is still an unknown quantity, and this fact no doubt accounts for the only partial immunity which can be conferred on an animal by any of the antitoxins as now made. The investigators all seem to be working on nearly parallel lines, seeking for a substance prepared with a view to attacking the bacillus, not in itself, in germicidal fashion, but by destroying the pabulum upon which it thrives, literally starving out the enemy.

At present there are two kinds of products which have satisfied the laboratory workers as exercising a more or less complete controlling influence over the development of tuberculosis artificially induced in animals, viz., remedies which are the product of the germ itself, and serum from animals rendered immune by culture products of the bacillus. To the first belongs Koch's new tuberculin. In the *Deutsche Medicinische Wochenschrift* of April 1, 1897, Dr. Koch described a new tuberculin—T. R. he called it. He claimed far more for this than he ever did for his original tuberculin, and stated positively that with it he could render animals immune and could frequently cure them after they had contracted the disease. Dried tubercle bacilli were taken, finely powdered, and centrifugalized with distilled water. The opalescent solution when tested upon animals gave the tuberculin reaction. The residual germs were submitted to this treatment a number of times, until finally all were practically dissolved or broken up, the cell wall being destroyed. The latter solution in small quantities seemed to exert both an immunizing and curative action in experimental tuberculosis. This preparation is now being clinically tested all over the world. The writer has

not had personal experience with its use. An agent of the importers brought him some bottles last June, but they had become contaminated owing to improper putting up, so he was afraid to make any clinical use of them. Clinical facts, as far as he has been able to learn from published articles, have not borne out Koch's claim for his new tuberculin.

A new antitoxin was introduced last autumn by Hirschfelder, of California. His scientific reputation was such that the product, oxytuberculin, has been extensively tried. It is made by adding peroxide of hydrogen to tuberculin, subjecting them to a steam bath for forty-eight hours, and then adding caustic soda. He then filters and neutralizes the filtrate with boric acid. The discoverer claims that as the result of this treatment the toxin of the tuberculin is converted into an antitoxin.

As far as the writer's personal experimentation with this antitoxin is concerned, on animals it does nothing. Hirschfelder claims that it delays the development of tuberculosis in guinea-pigs. This Loomis has not found to be the case. He has had an opportunity to judge of its action on the human subject in only one selected case. He saw no benefit from its use, but of course this is not a fair test. He has found that it is apt to cause some local irritation. At the present time there are three antituberculous serums being extensively used, but he understands that Babes and Behring are both actively engaged in working out new products.

If the antitoxic serum treatment of tuberculosis could be freed, for the present at least, from its commercial aspect, and systematic experiments be continuously conducted in hospitals and sanitariums, then this method might be looked to for good results.

The serum most extensively used at present is Maragliano's serum, or as it is commonly called, the "Italian serum," obtained by treating horses with tuberculin and then with virulent culture of the tubercle bacilli. Maragliano says that tuberculous temperature is reduced in all cases with this serum, and modestly claims apparent improvement in the disease in very many cases. The author has had no experience with this serum, but Dr. Walter James gave it with great care and for a long period of time to a patient whom Loomis saw with him in consultation. He states that he "saw absolutely no benefit and no harm from its use;" the patient steadily

lost ground from the beginning, and finally died.

A second serum is Paquin's, known as tuberculosis antitoxin. This is prepared by Paul Paquin, and is used extensively throughout the West. Its preparation and introduction are entirely along commercial lines. It certainly is not an inert substance, as the writer has seen a patient go into a serious collapse within a few minutes after an injection.

A third serum is the antistreptococcus serum. This serum is not an antituberculous serum, but is often given in cases of phthisis with mixed infection. It is claimed for it that by destroying the streptococcus which is so often present many of the annoying symptoms of phthisis are removed, such as purulent expectoration, night sweats, anorexia, and high temperature, and thus it indirectly affects the tuberculous process favorably. The writer tested it last spring carefully, in the New York Hospital, and had daily examination made of the sputum of the patients who were being injected. In none did the microscope show any change in the mixed infection, nor did the patients show uniform improvement.

For a long time the United States Government has been experimenting in the biochemical laboratory of the Department of Agriculture with an antitoxin serum, looking primarily toward finding an immunizing agent, especially for use among domestic animals. A large experimental farm just out of Washington is connected with the laboratory and the work is very complete. Dr. de Schweinitz, the director of the laboratory, last summer wished to have this serum tested clinically at the Loomis Sanatorium, and the writer agreed to give it a thorough trial. The serum being provided by the Government, from purely scientific motives, he was the more ready to test its efficiency. In the manufacture of this antitubercle serum, attenuated cultures, culture fluid, and tubercle bacilli were injected into horses continuously for fifteen months (4459 cubic centimeters of the fluid being injected in some horses). Animals were experimented upon with the serum from these horses. The following conclusion is taken from the Government report: "The experimental results obtained lead undoubtedly to the conclusion that, while the treatment with antitoxin serum is still in the experimental stage and should as yet be used only under the best conditions, we are on the road to success in the treatment of

this disease and nearer our goal than ever before" Some of this serum has been sent to Liberty continuously for the last seven months, and thirty-eight patients have been injected every day or every other day for varying lengths of time with ten minims of the serum. A report of the first fifteen cases treated is here given: The average number of injections given each patient was thirty-eight. No other treatment was employed. All had the benefit of climate and good food. Four were discharged cured, six improved, and five became worse under the treatment. Eleven gained in weight, two remained stationary, and two lost weight.

The writer has always considered that any particular line of treatment carried on with patients who are also under the best climatic conditions may not be a very fair test of its efficacy. So far he has been using this serum lately on a number of patients in his wards in Bellevue Hospital, but the treatment has not been continued long enough to reach any conclusions. If it improves that class of cases, he for one will believe in its possibilities.

Were the writer to formulate such conclusions as he has been able to gain of serum therapy in the treatment of tuberculosis as it stands to-day, they would be as follows: None of the serums have marked or immediate effect on the disease. The question is, Should they be expected to? If one tries all the serums, in a disinterested way, it must be recognized at once that they are certainly not inert substances.

One cannot but be impressed with the moral effect which hypodermic injections have on some patients. The writer has seen, in neurotic patients, fever leave and weight increase under daily hypodermics of water.

Dr. Stubbart, the physician in charge of the Liberty Sanatorium, reports that comparative tables of the results of the treatment of phthisis show a balance in favor of serum, in increase in weight, decrease of expectoration, general improvement, and physical signs.

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*AN EXPERIMENTAL STUDY OF FAT  
STARVATION, WITH ESPECIAL REF-  
ERENCE TO THE PRODUCTION  
OF SEROUS ATROPHY  
OF FAT.*

C. A. HERTER, writing in the *Journal of Experimental Medicine* for May, 1898, says that the experimental study which forms the basis of his paper was originally under-

taken to determine whether the lesions of rickets or similar lesions can be produced in growing animals by withholding fats from their foods as far as practicable. This inquiry was suggested by the alleged frequently low fat content of the milk of women whose children have grown rachitic on breast-milk, by the occurrence of rickets in children fed largely on condensed milk, which is poor in fat, and by the fact that the clinical indications of rickets are often lessened by a diet rich in fats.

The common pig, *Sus scrofa*, was the animal chosen for the experiment, partly because of his omnivorous habits and partly because the nutritive vigor of this animal seemed likely to render possible the extension of the necessarily depressing experiment over a long period of time.

The lesions resulting from fat starvation, at least in the case of pigs, do not resemble or even suggest those of rickets.

Prolonged fat starvation leads to the entire disappearance of fat from the adipose tissues. The form of fat atrophy observed as the result of experimental fat starvation corresponds to the serous fat atrophy described by Flemming, and is essentially the same type of fat atrophy as that found in the epicardial and perirenal fat in the human subject as the result of wasting disease.

The lecithins of the brain and the fat of the liver are not materially reduced by fat starvation.

Fat starvation does not lead to advanced serous fat atrophy of the subcutaneous fat if the animal be given a large excess of carbohydrate food or a considerable excess of the carbohydrate and proteid constituents of milk.

Fat starvation causes a very imperfect absorption of the salts of  $P_2O_5$  from the intestine.

#### DRY LABOR: ITS DANGERS AND TREATMENT.

G. L. BRODHEAD in a paper with this title in the *Medical Record* of May 14, 1898, first discusses the general facts about dry labor, and then passes from the dangers and their symptoms to the treatment. Many cases do badly for the reason that they are treated as cases of normal labor. The writer maintains that the early rupture of the membranes puts a new phase, so to speak, on the labor, and certain plans of treatment, which in normal cases are unnecessary and unadvisable, seem to produce good results in cases of dry labor.

Let us take for consideration, first, those cases in which the membranes rupture before labor sets in. In every case, whether before labor or during labor, even though an examination has been made a short time before, a careful examination should be made as soon as possible after the rupture of the membranes or their reported rupture. Some women are mistaken in their diagnosis of the condition, but it is far better to assure one's self of the exact condition of affairs. By doing so we verify or disprove the woman's statement, detect any accident, such as that of a prolapsed cord or small part, and, moreover, are able to make the diagnosis of presentation and position an accurate one. Again, it is perhaps needless to state that, if the case be one of malpresentation, operative interference immediately after the rupture of the membranes will be possible, and with excellent chances of success; whereas the failure to learn the exact condition at once may result in the death of the child, the correction of the abnormal presentation being later impossible.

After one careful examination has been made, however, further efforts should be infrequent, and then not be prolonged, for in some cases, as stated, the presenting part in its descent blocks up the point of exit of fluid, and further escape is thus prevented. This is, of course, most favorable to the child, and we may in further examinations undo, as it were, the assistance which Nature has kindly given us. After the rupture of the bag of membranes, the sooner labor commences the better, as a rule, will be the prognosis. The writer's plan in these cases is to administer at once a large dose of castor oil and glycerin, followed shortly after by ten grains of quinine sulphate, to be repeated every three hours, with one-thirtieth grain of strychnine sulphate every two hours, careful watch being kept for unpleasant effects of either. These drugs, he believes, aid in the induction of labor, and given during labor seem to increase the number and strength of the contractions, in some cases at least. Under close observation they can do no harm, and serve to stimulate the patient to a certain extent as well. At this time women are able, it has seemed to the writer, to take much larger quantities of these two drugs than at any other time, without unpleasant effects.

Before the digital examination is made the genitals should be scrubbed with soap and water (the official *sapo viridis* being prefer-

able); then with a solution of bichloride 1 to 2000, or a solution of lysol one per cent. After the examination a sterile pad of gauze, covered over with a towel or small vulvar pad, should then be placed over the vulvar outlet, and changed as often as saturation with amniotic fluid makes necessary. In this way the vagina can be kept free to a certain extent from the entrance of "outside" infection. Another procedure, which has been followed by excellent results, is the use of vaginal douches of lysol in one-per-cent. solution, as hot as can be borne, one being given every six hours, to the amount of about three quarts. These douches will keep the vagina sweet and clean, will leave the mucous membrane smooth and soft (acting in just the opposite way from bichloride solution), will stimulate uterine contraction, and in some cases seem to soften the cervix somewhat. Here again the importance of absolute cleanliness must be emphasized, for unless these douches can be given with the greatest care they may easily be the cause of the introduction of septic material. When, now, the membranes rupture during the first part of labor, the treatment as outlined above is carried out, with the exception of the cathartic perhaps. This can be given or not, according to the necessity.

The use of chloral and opium in dry labor must be a guarded one, the danger of asphyxia and protraction being always kept in mind, and it being remembered that these cases often need stimulation rather than a period of rest, during which time more and more fluid is escaping. The fetal heart should be carefully noted before such drugs are administered. The writer recalls one case in which chloral was administered in the latter part of the first stage, the fetal heart being then somewhat more rapid than it had been during the earlier part of labor. Very soon thereafter the fetal heart became so much more rapid that the forceps was used, the cervix offering practically no resistance. Meconium was found when the blades were introduced, and in spite of a quick delivery, made more difficult by the sluggish action of the uterus induced by chloral, the child was born deeply asphyxiated and was with only the greatest difficulty resuscitated.

Several months ago, at the Sloane Hospital, in the attempt to induce labor on a patient with deformed pelvis, the membranes were accidentally ruptured and a considerable amount of amniotic fluid escaped. When informed of the condition of affairs, Dr. Tucker,

who was then in charge of the hospital, advised that the vagina be tightly tamponed with sterile gauze, in order to hold back as far as possible the escaping fluid, both for the sake of the child and to aid in softening and dilating the cervix. This procedure, of such great value in abortion and placenta prævia with rigid cervix, proved in this case to be of apparently great assistance, the cervix dilating perfectly within a very few hours. Having seen the good effect of the tampon in one case, the question has arisen in the writer's mind, Would it not be a good plan to apply such a tampon as a routine procedure in all cases of dry labor? At present the writer is unable to state any results from following such a plan, but theoretically at least it should be successful. When the progress of labor is very slow, he believes it is best to stretch the cervix a little every few hours, a preliminary vaginal douche of lysol having been given. Care must be taken also that the strength of the patient be kept up in every possible way, by the use of plenty of nourishment and stimulants if necessary.

Now, is operative interference ever advisable during the first stage of a dry labor, except when complicating conditions—such as eclampsia, hemorrhage from placenta prævia, etc.—arise, or when from any cause the condition of mother or child strictly indicates operation? In the writer's opinion there is one condition of affairs in which much good can be accomplished, namely, in breech presentation. When a breech labor is protracted in the first stage, even though as yet no symptoms of danger are present, we are justified in giving the patient a little chloroform, the vagina having been first thoroughly cleansed, and in introducing the hand for the purpose of bringing down one foot, preferably the anterior, with which to make traction from time to time. If this be done early, it can usually be accomplished with no great difficulty, whereas later on it may be a very difficult matter. If both legs are extended, the operation will accomplish even a better result, in that it will have broken up the existing "wedge," at a time when the operation is comparatively easy. After the escape of a large amount of liquor amnii, it is sometimes a difficult task to grasp a foot lying high up in the uterus, and the difficulties increase the longer the operation is delayed. If danger symptoms are present, or if for any intercurrent condition it becomes necessary to deliver at once, the usual methods of cervical dilatation, forceps or version, are to be used.

When we come to the consideration of the second stage of dry labor, the statement just made with reference to the first stage holds true here as well. But in the absence of danger symptoms the question arises, How long shall we wait, in the second stage, for its natural termination? It is very difficult, and in fact impossible, to fix any definite period of time; but in the writer's opinion, if in one-half hour after the commencement of the second stage there has been little or no advance, the forceps (or extraction if the breech presents) is advisable, chiefly in the interest of the child, but with the welfare of the mother also in view. He has never had occasion to regret early operation in the second stage of dry labor, but there have been many, many children lost owing to delay at that time and the failure to interfere promptly.

Reference has already been made to lysol for vaginal douching, and its use preliminary to all operative measures is a most excellent one. It not only cleanses the parts very thoroughly, but leaves the mucous membrane smooth and soft, thus making any operative procedure much easier and the liability to laceration far less. Early interference in these cases is obviously in the interest of the soft parts of the mother, for time can be allowed to preserve their integrity, whereas if operation be undertaken when meconium is being passed or the fetal heart is already bad, the welfare of the child demands speedy delivery, with consequent laceration oftentimes of vaginal and perineal tissues.

In closing, the author emphasizes the great importance of dry labor, the possible dangers, chief among which is fetal asphyxia, and the belief that with close observation and prompt energetic treatment our statistics both for mother and child will be greatly improved.

#### OPIUM IN HEART DISEASE.

In the *Canadian Practitioner* for May, 1898, MCPHEDRAN, of Toronto, writes on this neglected but important subject. He begins by asserting that with few exceptions the symptoms of heart disease arise from deficient power in the heart to meet the demands made upon it. This is true whether the excess of work thrown upon the heart be due to disturbance of the circulation by disease of the valves, or to degeneration of the wall of the heart, reducing its power below the requirements of the circulation. Our conceptions of heart disease are so intimately

associated with disease of the valves that too often the two conditions are looked upon as identical, or, rather, that the changes in the heart wall are secondary to the disease of the valves.

The valves are but mechanical structures, and disease of them, apart from infective processes, gives rise to symptoms only as it deranges their mechanical action, and thus leads to disturbance of the functions of the heart, and through this to degeneration of the cardiac walls. Cases resulting from lesions of the valves form only a small proportion of all the cases of heart failure.

Pathological changes in the heart occur much more frequently as part of disease of the general vascular system. It is in such cases that the most mature judgment is required in estimating the amount of injury to the cardiac muscle and its powers of recuperating, as well as the best means to be adopted to restore its powers so that they may be adequate to the demands made upon them.

In the treatment of cardiac failure our aim should be twofold, viz., first to reduce the work of the heart as much as possible, and secondly, to stimulate and strengthen its walls so as to enable them to perform their work adequately.

Of the means at our disposal to reduce the demand made on the heart, the most important is, of course, rest. By rest we seek to relieve the heart of all work except that necessary purely for the maintenance of life. Many patients are restored again and again from incompetency of the heart by rest in bed alone. Each recurring attack of failure is more easily induced than its predecessor, and the restoration of competence is effected with more difficulty, until rest alone is unequal to the task of restoring effective power to the heart.

As the effect of physical labor is to greatly increase the strain on the heart, it follows that the benefit of rest in restoring the failing heart will be much greater in the man engaged in physical labor than the man leading an easy life. In the laborer the heart obtains relief to a much greater degree by rest than does the heart of his more fortunate neighbor. In the former, rest may mean the removal of three-fourths or more of the heart's ordinary labor, while in the latter not more than one-fourth or even less of its work is relieved. Another fact of great importance in the difference between the two is that in the laboring man the diseased heart fails.

early, while in the man of easy life it is not until the heart is far advanced in degeneration that he shows the signs of failure. The former will therefore possess much greater recuperative power than the latter.

When the cardiac changes have advanced so far that rest alone is insufficient to restore competency to the heart's action, the end for a time may be attained by the use of cardiac tonics and stimulants to aid the rest in restoring the equilibrium.

In addition to rest the labor of the heart is also greatly relieved by full elimination of the waste products in the blood through the kidneys and bowels. It is probable that this in a great measure affords the explanation of the great benefit often reported from the use of calomel in cardiac disease with dropsy. Any purgative that causes free liquid evacuations will do good.

If the circulation is in fair condition, the drinking of water on an empty stomach is probably the best diuretic, and therefore the most efficient stimulant to elimination by the kidneys. Any remedy that increases the force of the circulation will, of course, proportionately increase the excretion by the kidneys.

In advanced cardiac disease, especially after repeated failures, complete rest of body and mind, aided by free administration of cardiac stimulants and tonics and the judicious use of purgatives, often fails to give relief. The signs of cardiac incompetency increase; there is increasing dropsy and dyspnea with insomnia. The rest of the body is not sufficient to bring the needed rest to the heart; it remains irritable; its action becomes increasingly irregular. The patient grows weaker, the paroxysmal dyspnea increases. Almost as soon as he falls asleep a severe attack of dyspnea causes him to awake and sit up in bed. The distress from the dyspnea is great, but that from want of sleep is greater. These are cases in reality of *angina sine dolore*. Such a condition is rarely benefited by the freest possible use of digitalis or other cardiac tonics and general stimulants. If the dyspnea is not due in part to effusion into the pleura and edema of the lungs, a dyspnea that is persistent and not paroxysmal as cardiac dyspnea is, there is no remedy so effective in such a condition as morphine. The comfort afforded by a hypodermic injection is almost incredible. Given by the stomach it often fails even in much larger doses, because absorption is so slow, on account of the venous stasis in the mucous membranes of the stomach as well

as of other parts, caused by the impeded circulation. In most of the writings on the treatment of cardiac failure too little is made of the great benefit to be obtained by the use of morphine in such conditions. Many of them make no reference to morphine at all in connection with heart disease; a few place its efficiency in severe heart disease next to digitalis. The writer is inclined to look upon it as even more important than digitalis in these cases—in fact, as indispensable.

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#### THE AIX-LA-CHAPELLE TREATMENT OF SYPHILIS OF THE NOSE AND THROAT.

This method of treatment is well described in an article by LIEVEN in the *Laryngoscope* for May, 1898. He tells us that the patient arises in the summer at seven o'clock, in the winter at eight o'clock; drinks several glasses of special spring water during a one-half hour promenade; one-half hour later he takes a sulphur bath (95° F.) of twenty minutes' duration. In weak patients breakfast should precede the bath by about one and one-half hours. After the bath the patient rests for one-half hour; he is then ready for breakfast.

In vigorous patients the writer adds the vapor bath to the above plan; this is an exceedingly active stimulant to tissue change. After breakfast the patient receives an inunction at the hands of an experienced rubber. Daily one of the following areas is subjected to the inunction: (1) both thighs; (2) both axillae; (3) breast and sides; (4) back; (5) both arms.

The patient is directed to wear woolen undergarments, which are to be changed only once weekly. The anointed areas are rubbed for twenty minutes, until the parts are almost dry. The patient should be instructed not to wash these areas when bathing. The skin is dried about these parts simply by pressure of the towel to absorb the moisture and thus avoid removing any of the salve. Only those parts which are to be anointed the following day are to be thoroughly washed.

The patient is instructed to rest one-half hour after lunch; then two or three hours' exercise should be taken (promenades in the woods, bicycling, riding, tennis, etc.). About half-past five a draught of spring water (about 300 grammes) is taken. Dinner at seven o'clock. At half-past ten the patient retires. The sleeping apartment at all times should be thoroughly ventilated.

To avoid stomatitis, the patient is directed to cleanse his teeth with the following tooth-powder, after each meal:

- ℞ Salol, 4.0 grammes;  
Resorcin, 2.0 grammes;  
Pulv. irid. flor., 40.0 grammes;  
Calc. carbon, 8c grammes;  
Carmin, 0.3 gramme;  
Ol. menth. pip., 10 gtts.

He also directs that the mouth be rinsed every half-hour with the following mouth-wash suggested by Dr. St. Clair Thomson:

- ℞ Liquor alumin. acetic, 100 parts;  
Aq. flor. aurant., 300 parts;  
Aq. dest., 800 parts.

The patient carries this with him constantly in a flat bottle. If after these precautions are observed there are still indications of stomatitis, the gums should be painted every two hours with tincture of myrrh. In spite of these precautions stomatitis may develop, and as a rule makes its appearance about the upper incisors and posterior area of the wisdom teeth, characterized by a detachment of the gums, with the formation of a white zone of demarcation. When this occurs it is not an indication, as is usually supposed, for the cessation of treatment. When such a condition presents itself, the following procedure is adopted: With a small applicator, tufted lightly with cotton, the white deposit between the gums and teeth may be wiped away carefully, and the cleansed area penciled with a seventy-per-cent. solution of chromic acid. The chromic acid solution should not be allowed to diffuse in the mouth, and the patient should avoid swallowing for about twenty minutes. The day following such procedure the patient can usually masticate even hard food.

Moderate diarrhea may be regulated by the following:

- ℞ Decoct. Colombo, 4 drachms;  
Tinct. opii, 15 minims.  
M. A tablespoonful every two hours.

A diet of oatmeal gruel, eggs and toast is prescribed for twenty-four hours; also the drinking of tea without sugar, and claret.

Cases of severe mercurial poisoning are of very rare occurrence. Patients who have exhibited poisoning symptoms at home or in sanitariums, after the administration of small quantities of mercury have demonstrated their ability to undertake a six or eight weeks' course of treatment in Aix-la-Chapelle without the slightest sign of mercurialism. The author attributes this fact to the stimulation of the tissue metamorphosis

by the thermal baths, and the internal use of the sulphur water. Secondly, the apparent cause of this successful course of treatment in Aix-la-Chapelle, where large quantities of mercury may be exhibited without bad effect, may be due to the favorable influence of the baths, which seem to diminish the toxic effects of mercury. The researches of Grabower have established the fact that the influence of sulphur on mercury causes the conversion of large quantities of metallic mercury into HgS, and that this combination, by reacting in a milder and more constant manner, produces a powerful anti-syphilitic effect, as already mentioned. The writer combines with the course of treatment here described, for tertiary syphilis of the nose and throat, the internal administration of from two to six grammes of potassium iodide daily. In anemic patients he prescribes the iodide as follows:

- ℞ Potassii iodidi, 30 grammes;  
Ferri citrat. ammoniat., 4 grammes;  
Tinct. nuc. vomic., 8 grammes;  
Aque destillat., 30 grammes;  
Tinct. cinchonæ comp., q. s. ad 120 grammes.

M. S.: Two to four teaspoonfuls daily in water.

After the disappearance of the gummata and the healing of ulcerations, the iodide administration is discontinued. In the writer's opinion, the iodides exert their influence only as resorption agents of the products of tertiary syphilis; the poison itself and the hypothetical bacteria can be influenced only by mercury.

As regards diet, in the course of treatment prescribed at Aix-la-Chapelle, especial stress is laid on the administration of nourishing food, to build up the strength of the patient. No restrictions in diet are given, with the exceptions of sweets, strong salads, and cheese. By this exclusion there is less predisposition to diarrhea.

As to drinks, two or three glasses of Münchener beer or a half bottle of French claret are allowed in the evening. Alcoholic drinks are absolutely excluded.

In addition to the general therapy, careful attention to local treatment of the nose should be given; this is especially directed to the removal of the foul-smelling secretions, and also to the careful disinfection which follows the breaking down of the tissue in the nasal cavities.

The crusts are removed by sprays of thermal water or lifted out by the forceps. The coarse residue may be removed by the daily use of the Gottstein cotton tampon; this may

be covered with a ten-per-cent. euphen salve. The ulcerations are penciled with a seventy-five-per-cent. solution of chromic acid; this should be done under good illumination and by the use of the speculum. The same may also be applicable to the pharynx. In the larynx ten- to twenty-per-cent. solution should be used. Sequesters, after they have been loosened, may be surgically removed.

#### *SOME POINTS IN THE TREATMENT OF BRONCHITIS BY DRUGS.*

D. J. LEECH, of Manchester, contributes an article on this subject to the *Practitioner* for May, 1898. He thinks that it may seem almost superfluous to write anything in the *Practitioner* concerning the treatment of bronchitis; it is so common an ailment that almost every practitioner has a large experience of the methods of dealing with it. But the writer has noticed considerable differences in the manner in which bronchitis is treated by medical men, and he thinks there are some points to which attention may with advantage be called—more, however, with regard to the manner in which drugs are given than with regard to the drugs themselves.

In acute bronchitis of adults a combination of acetate of ammonium, spirit of nitrous ether, and ipecacuanha or antimony is commonly used, and no better combination can be employed. But the writer holds that an error is often made with regard to the dose of two of these substances. The quantity of acetate of ammonium ordered is usually too small. The author commonly finds an ounce or an ounce and a half of solution of ammonium acetate ordered in an eight ounce mixture, an ounce of which is to be given every four hours. Now the writer would not say that doses of a drachm to a drachm and a half of solution of acetate of ammonium have no effect, but he is quite sure they are too small to be of value where the definite action of the drug is required. In the Pharmacopœia the dose of liquor ammonii acetatis is given as two to six drachms, and in this the Pharmacopœia is right. The writer has not found less than two drachms act on the skin or give the general relief which often results from a larger dose in the early stage of acute bronchitis. He believes it is better to begin with doses of three drachms, and to increase the amount to six drachms if the skin does not act freely. Marked relief to the breathing often, though by no means always, accompanies the diaphoresis.

Spiritus ætheris nitrosi, too, is very commonly given in doses too small to be of value. The writer has often seen prescriptions for acute bronchitis in which this drug has been ordered in doses of fifteen to twenty minims. It is not probable that such doses have any influence on the course of the ailment. Spirit of nitrous ether may possibly act in half-drachm doses, but in doses of a drachm to two drachms, especially when repeated at short intervals, it has commonly a very distinct effect as a diaphoretic. He believes it sometimes relieves the respiratory troubles by exercising influence on the bronchi and the vessels of the lung, for the ethyl nitrite of the spirit is capable of relaxing the bronchial muscles and dilating the lung vessels; but specimens of spirit of nitre often vary considerably in the quantity of nitrite contained. The author is inclined to suspect that the spirit of nitre in many surgeries is almost devoid of the active ingredient, for this is apt to decompose when the drug is long kept. It must be borne in mind that drachm doses of spirit of nitre occasionally give rise to eructations, and that there are some people who cannot take it in these doses without great discomfort. There is an interesting point in connection with the spirit of nitre which is worthy of notice. Mixed with water it rapidly decomposes, but in the presence of acetate of ammonium this decomposition is rendered slower. He suspects that it was partly on this account that practitioners in early times found it advantageous to combine acetate of ammonium and spirit of nitre in the production of the "febrifuge julep," which was once so largely used in the treatment of all febrile ailments. Both ammonium acetate and spirit of nitrous ether are largely used, without any clear idea as to the curative influence they are likely to exert, and under these circumstances the smallness of the dose does not matter; but in acute bronchitis, where a definite action is desirable, both drugs should be given in such quantities as are likely to quickly produce the desired effect.

In young children attacked with acute bronchitis, where the temperature runs high and a few scattered rhonchi over the lungs foreshadow further troubles, the writer has seen more advantage from giving antipyrin than from acetate of ammonium. After a five-grain dose to a young child five or six years of age profuse perspiration followed by a very marked improvement often occurs.

The author has often tried to determine



the comparative value of ipecacuanha and small doses of antimony in acute bronchitis. It seems to him that antimony in doses of one-twentieth of a grain is of most service where there are abundant small basic moist sounds and the breathing is oppressed; whilst where there are dry rhonchi all over the chest, with irritable cough, ipecacuanha is more useful than antimony. But he would not like to assert this confidently.

In cases of chronic bronchitis, ammonia, senega, squill and ipecacuanha are the drugs most commonly used, digitalis and strychnine being given when there is evidence of failing or defective cardiac or respiratory organs. Though the writer has much faith in carbonate of ammonium, he believes it often fails to benefit a patient owing to the manner in which it is given. He not infrequently finds patients suffering from severe chronic bronchitis taking three to five grains of ammonium carbonate, or ten to twenty minims of aromatic spirit of ammonia, every four hours. Such small doses probably exercise a beneficial influence on the stomach, by their carminative and antacid action, but he has never been able to satisfy himself that any influence on the circulatory and respiratory organs is produced by them. Such a dose as three grains of carbonate of ammonium must when taken into the stomach be rapidly converted into a chloride, and often five grains given at intervals of several hours can leave little margin for such absorption of ammonia as shall benefit the chest organs. It does not seem likely that doses of ten to twenty drops of aromatic ammonia, given at long intervals, can produce any other than carminative effects. On the other hand, he has seen ten grains of carbonate of ammonia, given every hour or two, cause distinct quickening and increased strength of the pulse. It is not so easy to determine the effect of ammonium carbonate on the respiratory organs; nevertheless, he thinks he has observed a favorable influence, the respiration being deepened and the expectoration more easily raised. Ammonia is very diffusible, and is doubtless quickly absorbed. There is every reason to believe that it is rapidly changed and excreted. It seems to Leech, therefore, that we can hardly expect that three to five grains of carbonate of ammonium, given at intervals of four hours, will exert any curative influence where it is necessary to stimulate the respiratory center and promote expectoration in a serious case of chronic bronchitis. To produce the effect which we desire

from carbonate of ammonium it should be given at short intervals. The drugs with which ammonia is frequently combined—squill, senega, etc.—are not advantageously given at very frequent intervals; moreover, the combination of ammonia with these drugs results in an unpleasant mixture, the nauseous taste of which is not easily concealed.

The most effective and convenient method of giving ammonium carbonate in chronic bronchitis is to dissolve it in water and give the solution in milk. If sixty grains be dissolved in six ounces of water, a tablespoonful (five grains of the carbonate) can be given every hour or two, according to the nature of the case, in the milk which is taken by the patient. A tablespoonful of such a mixture can be added to four ounces of milk—not, indeed, without making its presence perceptible, but without giving the milk a taste to which the patient will object. Indeed, many patients seem singularly insusceptible to the presence of carbonate of ammonium, and it is often possible to put five grains of carbonate of ammonium to two ounces of milk without any objection being raised. This method of giving ammonium carbonate in milk is specially advantageous when we wish to give strychnine as well as expectorants, for the addition of carbonate of ammonium to a mixture containing strychnine tends to throw down the alkaloid. The writer also points out that the presence of ammonium carbonate in the milk is advantageous because of its antacid effects, and in some cases milk agrees best when the ammonium carbonate is present. Aromatic spirit of ammonia cannot be well given with milk; the mixture is not agreeable.

One advantage of separating the administration of carbonate of ammonium from that of the other drugs is that we can give the latter beneficially without thereby losing the good effect that may be obtained from carbonate of ammonium. Senega and squill given at short intervals keep the stomach in a constant state of irritation. Senega is a somewhat remarkable drug. Nothing we know as to its active constituents enables us to understand how it produces expectorant effects. Its activity seems to depend on the presence of senegin, one of the saponin substances. Now saponins, as far as we know, are only absorbed from the stomach with the greatest difficulty; in fact, we have no proof yet that they are absorbed at all from the healthy stomach. Senega has maintained its reputation as an expectorant for so long a time that

we can hardly doubt it must have some value. It may, perhaps, act through its influence on the stomach, on the mucous membrane of which it acts as a distinct irritant, its effect being somewhat prolonged. Because of its irritating effect it is undesirable to give this drug at intervals of less than four hours.

The efficacy of squill in bronchitis is much questioned, especially on the Continent, where this drug is looked upon rather as a cardiac tonic than as an expectorant. But the writer feels satisfied that he is right in considering the latter property as the more important. He believes it is useful in all forms of chronic bronchitis, both in the early and late stages. When there is much dyspnea, however, and evidence of accumulation in the bronchial tubes, he is inclined to think that ipecacuanha is of more service if given in large doses. But these doses should not be very often repeated. He has not seen the benefit he has expected from continued small doses. It is wonderful what a large amount can sometimes be taken with advantage. A short time ago he saw a patient suffering from bronchitis, with intense dyspnea and cyanosis, which a variety of remedies had failed to relieve. He advised drachm doses of ipecacuanha wine every four hours. Next day he found the patient very much relieved and charmed with the medicine, which had caused some sickness, but not much. He found, however, that by mistake the wine had been administered in ounce doses.

In conclusion, in reference to the use of oxygen in inhalation, the author finds some objection to its use on the ground that it is not a really curative agent. This is true, but the inference that it is not worth giving is fallacious. It does remove cyanosis, and a continuous condition of cyanosis must be an evil. His feeling is that the inhalation of oxygen is generally commenced too late. He believes its early use prevents the advent of that pronounced cyanosis we so often see, and which, when it is once established, may be only slightly benefited by oxygen. It thus gives patients an additional chance of life, and furthermore, in most cases it gives marked relief. If we objected to giving drugs in ailments unless they had a direct curative influence our use of the pharmacopœial remedies would be very limited.

#### THE VOMITING OF PREGNANCY.

In the *American Journal of the Medical Sciences* for July, 1898, BACON considers this

important topic. As he remarks, the obstetrician is generally not called until the vomiting is quite severe. Prophylaxis here consists in preventing the graver forms. Advice can also be given for the benefit of future pregnancies. Such prophylactic management consists in the cure of anemia, caring for digestible foods, the prevention of constipation, the correction of retrodisplacements of the uterus, and the cure of adhesions of the uterus as far as possible by massage. Especial attention should be given to the mental condition of the patient. The cases are particularly bad where a child is not wanted. Those patients who have no self-control are the most serious cases.

It will be seen from this that treatment to prevent vomiting of pregnancy should begin with the birth of the girl, as suggested by Giles de la Tourette when speaking of hysteria. Like the prophylaxis in hysteria, the entire education of the child is important. Later, the masterful but kind bearing of the obstetrician is one of his most important aids. Rules of hygiene are especially important; regular eating and bathing, proper clothing, suitable exercise, enough sleep, and massage, if necessary, are all to be attended to. Often account should be taken of the reading and amusements of the patient.

The hygiene and general management, such as described in prophylaxis, are here about all that is needed. A proper condition of the bowels must be secured by the use of fruit, saline laxatives, enemata, and abdominal massage. The patient should take a cup of hot milk half an hour before arising in the morning. These measures will, in the majority of cases, prove all that is needed and a very great help.

In the treatment of hyperemesis gravidarum, except the extreme cases, the indications are: first, to allay excessive irritability of the nervous centers; second, combat the neuropathic condition, hysteria, by strengthening the will; third, remove the source of peripheral irritation.

The abnormal irritability of the central nervous system, which especially interests us, may be due to the deranged nutrition or to intoxication. In any case it is best allayed by providing a steady circulation of the blood with an equable blood-pressure, and good elimination by the intestinal and renal emunctories.

For maintaining a proper intracranial circulation the horizontal position is necessary, and this measure alone is the most important

of all things in treating the vomiting of pregnancy, as it is in the allied condition of seasickness. The position must be constantly and persistently maintained. It is often desirable to have the head lower than the feet. All nourishment must be given without raising the head. During vomiting the patient must be turned on the side, and on no account be raised. These details are so important, and yet so often neglected, that they must be emphasized and often repeated. Absolute rest in the horizontal position also serves another important purpose, viz., it insures against unnecessary loss of strength and vital energy. In extreme cases the dangerous symptoms and the fatal results are from inanition. When there is no fresh supply of food the body has a limited store of energy, and when the usable amount, which comprises less than one-half the body weight, is consumed the patient must die; hence it becomes very important to restrict the amount of energy consumed and avoid all waste from unnecessary movements until the possibility of a new supply is established. Just as a starving person can live longer if he remains absolutely quiet than if he makes violent muscular exertion, so a vomiting gravida conserves her vital energy by remaining in the horizontal position.

Other ways of maintaining a normal circulation consist: (a) in stimulating the cutaneous capillary circulation by topical applications; (b) in hypodermic injections of stimulants and vasomotor regulators; (c) injection into the diminished blood-current of artificial serum, either through the intestinal or subcutaneous route. Peripheral vascular stimulation secured by sinapisms or by the hot-water bag to the epigastrium or to the feet will, of course, not be neglected. Warm clothing to prevent cutaneous capillary obstruction, as well as to preserve the heat and energy of the body, will be looked after.

The use of drugs which act on the circulation is not unattended with risk, because of unpleasant action on other organs of the body. Nux vomica or strychnine may be one of the most valuable of these agents. Whether the bitter stomachics, including the recent and now popular orexinum basicum, so warmly recommended by Frommel, Rech, and others, act on the circulation or locally on the stomach is not, so far as the writer knows, determined.

The value of intravenous or subcutaneous injections of salt solution in raising the blood-pressure and stimulating the circulation is

now well established. In all obstetric cases he believes the subcutaneous injection may be substituted, with advantage, for the intravenous injection. In the hypodermic injection there is no danger of the introduction of air into the blood-vessels, and the constitutional symptoms of chill, etc., which often follow intravenous injections are absent; moreover, the former method is much simpler and can be carried out by any one, while the latter is a surgical operation of some difficulty.

The value of artificial serum in restoring the vascular pressure after severe hemorrhage, and thus counteracting its serious symptoms, has long been known. Its more recent use in sepsis has been based on the theory that it washes out the toxins in the blood. During its employment in these cases, however, its effect on the blood-pressure has been especially noticed. As is well known, in severe cases of sepsis the pulse becomes rapid and soft, and the patient suffers from symptoms of weakened circulation as well as intoxication. It is in this condition that the *lavage de sang* exhibits its best effects, so that Tuffier, one of the most enthusiastic and diligent employers of this method, suggests that its chief value may consist in its effect on the circulation instead of its supposed action as a means of washing the blood.

If the abnormal irritability of pregnancy be due to intoxication the need of thorough elimination is apparent. This elimination is secured in ordinary cases by careful attention to the skin by means of baths and proper clothing, by preventing constipation, and by furnishing the system as much water as possible to aid the renal excretion. In hyperemesis gravidarum the urine becomes very scant. Here the subcutaneous salt solution acts very promptly and efficiently, as will be seen from the cases that the writer reports.

Nerve sedatives can be used in hyperemesis gravidarum only with great caution. If morphine is used quite large quantities must be employed, and its effects have seemed to Bacon to be in general bad. Chloral has cured two cases in his hands that no other drug had helped.

As before stated, it has already been shown by Kaltenbach and Ahlfeld, and many others, that the neuropathic condition is a very common and important element in the causation of hyperemesis gravidarum, and must be taken account of in its management. While it cannot be admitted that hysteria is the sole cause of the disease, it is very essen-

tial to remember that it has an influence in many cases where, upon superficial observation, it would not be suspected, and that in other cases where no true hysteria exists some neuropathic condition, inherited or acquired, is one of the causative factors to be reckoned with. Hence the entire examination and treatment should proceed with this fact in view, in order that the proper psychical influences necessary to a successful control of a neuropathic patient may be obtained. In the management of these hysterical cases it is often best for the obstetrician to plainly inform the patient that the control of the vomiting is possible by an exercise of the will, and insist that she make the effort. Chazan reports a serious case to which he was called to induce abortion, which he successfully managed in this way. In many cases suggestion has been employed. Terrien reports a cure from the suggestion that the six-weeks' fetus had been removed, showing the patient a flake of mucus from the vagina. Doleris reports three cases cured by electricity when no current existed. These cases might be multiplied from the literature, but they are sufficient to show the possibilities of this method of management. It is also probable that many cases reported cured by the various methods of uterine treatment, by stomach lavage, by electricity, etc., are cases of cure by suggestion. Muret reports a cure which he attributed to suggestion after one lavage. As his patient had suffered from gastritis before pregnancy, it might not be possible to ignore the local effect of the treatment. It is, however, very likely that many of the cures from Copeman's dilatation of the cervix, from cauterizing the external os uteri with nitrate of silver, from the use of electricity, etc., are due simply to suggestion. Hence, in planning the course of treatment of a case of hyperemesis gravidarum it is very important to examine the patient very carefully to determine the presence of a hereditary tendency to hysteria, and to search for hysterical stigmata. Having found a neuropathic element, we should not neglect the well-established principle of treatment of hysterical patients. The most important measure is separation from friends and relatives. In these cases they form the worst possible nurses. Let the patient be isolated under the care of an intelligent nurse experienced in these cases, and be subjected to a regimen consisting of frequent feedings, massage, baths, etc. Such a course does not overlook the possibility of a complication

with some reflex disturbance from a peripheral irritation, which should, of course, be attended to.

If the examination has shown the presence of a peripheral irritation, either as the only recognized cause of the vomiting or as a complicating factor with hysteria, the treatment indicated is the removal of the irritation. One should not forget that pathological conditions in the gastro-intestinal tract may be a source of reflex vomiting. Physical examination of the abdomen will often reveal the presence of hard fecal masses in the ascending or descending colon, or in both. Our first effort will naturally be to remove them by large enemata, combined with massage. A number of cases have been reported where cancer, or stricture of the pylorus, or phlegmonous gastritis, has been found. Yeast cells are often abundant. In pathological conditions lavage is indicated. In a case the writer saw the stomach was the seat of excruciating pain, which had led the patient to take large doses of morphine. The author is inclined to regard this pain as a hyperæsthetical stigma of hysteria. For such a case a local ice-bag is indicated.

When a pathological condition is found in the pelvis it should be corrected if possible; a retroflexed uterus should be replaced and held in place by a pessary. But little can be done for adhesions of the uterus to neighboring organs if first discovered in pregnancy. An eroded os can be touched with silver nitrate, more for the moral effect on the patient than for its use in curing the lesion. Copeman's dilatation should be used with great care, if at all, with the same object in view.

It has already been suggested that the congestion of the pelvic and splanchnic area veins may not only be an important cause of disturbance of the medullary centers, but also act as a source of powerful reflex irritation. In this case any measure already suggested to relieve the circulation will tend to relieve this congestion. In addition to these measures, the application of an ice-bag over the hypogastrium is worthy of trial.

Under the plan of treatment thus outlined most cases that have not advanced to the last stages of starvation can be controlled. It now becomes necessary to consider those cases in imminent danger of death from inanition, and to discuss the frequently employed procedure, the induction of abortion or miscarriage.

The results of abortion are not encouraging. Cohnstein's statistics embrace 200 cases, in only forty per cent. of which did vomiting cease after abortion. The death-rate is very high. Abortion is generally performed so late that it adds much to the danger of the patient, and if done early it is probably unnecessary. The writer adds three fatal cases where abortion failed to check vomiting and probably aided materially in the fatal issue. The first case was complicated with sepsis from the bladder, and, perhaps, should hardly be classed with the other cases, but for its bearing on the causation it is included.

#### *SOME NOTES ON ABORTION AND ITS MANAGEMENT.*

Under this heading we find in the *Inter-colonial Journal of Australia* of March 30, 1898, a paper by ADAM. Notwithstanding all the ills that followed on the expectant treatment of the past, he is rather inclined to the opinion that the increase in our armamentarium, and the confidence, begotten no doubt by experience, with which we can handle the uterine cavity with comparative safety, has made us overready to interfere and neglect the *vis medicatrix*. By this is meant that the temptation to get the abortion over as soon as possible makes us use the curette and clear out the uterus in all cases, and as soon as possible. But Adam pleads for an intelligent expectant treatment—a delay until Nature has made her effort to complete the detachment of the ovum from the uterus, provided always there are no untoward signs. He does not subscribe to the view that curettage of the uterine cavity is advisable in all, or at all events most, cases of abortion. But the opinion is gaining ground that very many cases of abortion are injuriously affected by the indiscriminate use of the curette. The argument that abortion is a pathological process, and therefore there must be a diseased endometrium, which should be removed, does not seem to be sound.

The prime agent in the management of abortion is rest. When signs of impending abortion appear, the patient should be sent to bed, and should remain there absolutely until she has convalesced. As long as there are no symptoms of anything going wrong, such as hemorrhage or foul-smelling discharge, rise of temperature or pulse, it is only necessary to keep the patient at rest, and allow the ovum to separate in its own

good time. Should there be hemorrhage in an early abortion, and the case seen before separation of the ovum has taken place, it is an excellent plan after cleansing the vagina thoroughly to insert into the cervical canal a strip of iodoform gauze, packing it fairly tightly, and then to pack the vaginal roof with similar strips, leaving them from twelve to twenty-four hours in position. On their removal, the vaginal roof will be found nice and clean, with the cervix well dilated, and in many cases the ovum will be found quite separated and free. If it is not, its removal is greatly facilitated by having the canal dilated. In the past, before we ventured to thrust gauze or anything else into the uterus, the writer frequently made it a practise to tamponade the vagina, and although the sterilization of the vagina was necessarily imperfect, the results were excellent.

The routine administration of drugs, such as ergot, quinine, or Indian hemp, cannot be too strongly deprecated. Ergot, if it has any effect at all, must render the uterus in such a condition of tonic contraction that any subsequent procedures will be hindered, and as for quinine or cannabis indica having any effective ebolic action, Adam has doubts. But it is quite another thing to give such drugs after the contents of the uterus have been expelled. Then their effect on the vessels and uterine involution is marked. Perhaps one of the best combinations for the purpose is chlorate of potassium with ergot; another useful prescription is the stock one at the Women's Hospital, known as the Q. E. D. mixture—quinine, ergot, and digitalis. Such treatment quite suffices for an ordinary abortion; but in those cases where hemorrhage has been going on for some time, or where decomposition of the uterine contents is threatening, the uterus must be evacuated without delay.

Here it is that curettage has its legitimate field of operation. The patient should be anesthetized and placed on a table opposite a good light, and the cervix well exposed to view. If the cervix is not already well dilated, it should be carefully opened up, and the uterine canal gently and carefully curetted. The physician should be sure to examine all the scrapings, to see that the whole of the ovum has been removed, for the writer has known quite large pieces to be left behind sufficient to nullify the purpose of the operation. The uterus is then irrigated with sterilized water, or a weak solution of lysol, and then packed with iodoform gauze.

The operation is simple enough, but it has its dangers, and should not be lightly undertaken. Chief amongst the risks is the conveying of sepsis, although it would hardly be thought so in these days of asepsis. Another risk is the tearing of the uterus during dilatation, and of perforating it with the curette. The conditions of the case favor these accidents, for the uterus is soft and friable, and this is especially so when decomposition of the uterine contents has taken place. So easily may the uterus be perforated under such conditions that the writer has seen it done, and the operator was not aware of it until he hooked down with his curette a piece of intestine.

One more caution before resorting to the curette. After the patient is anesthetized, make a thorough exploration of the pelvis bimanually in order to see that there are no other diseased conditions, such as a pyosalpinx on one side, or a cystic tumor of some sort. For the writer has known patients to die from acute peritonitis after curettage from, apparently, a want of care in this respect.

#### NUCLEIN IN MALARIA.

The earnest student of medicine is continually surprised at the number of topics, thought settled for all time, which spring up with almost every step of progress. Especially is this true of the malarial fevers. The vast and delightful vista of study for microscopists opened up by the discoveries of Laveran, Marchiafava, Osler, Hewetson and others succeeded largely in ruling out many disorders formerly classified as of paludal origin. One could no longer be justified in assigning anomalous symptoms and disorders to that immense class vaguely termed "a touch of the malaria." With our more accurate means of diagnosis came corresponding strides in therapeutics, as has always been the case, especially during the last century, with pathological progress. Those poor unfortunates who have successfully resisted many physicians and methods of treatment are no longer saturated with cinchona and its derivatives.

Interesting observations have been made as to the behavior of this disease during the instigation of treatment, observations the result of which brought forth the initial sentence of this article. So many cases responded so readily and quickly to quinine, so beneficent and lasting were the effects obtained by this drug, that the dictum, corrob-

orated by the highest authority, was spread broadcast, that "a fever not responding to quinine was not malarial." It appeared as though "the final word" had been spoken, so meekly was this law accepted by the profession. But again it was only the ominous silence that often precedes the storm. Fortunately for science there are always in every branch those sturdy thinkers who accept nothing but what they themselves have personally proven. Shortly there arose a small cloud in the clear sky of malarial diseases, which has been gradually assuming such large proportions that the storm it foretells will inevitably cause material change in our ideas of this peculiar disease.

The first observations of ague in this country, and those upon which the law above referred to is based, were made mainly by Northern men, or, in other words, in a latitude where the most bizarre phases of the disease are rarely seen—those of the estivo-autumnal parasite. As regards the tertian and quartan forms of the plasmodium, continual study but adds proof to the dictum of Osler, that "any fever that resists the action of quinine is not malarial." Osler's researches and those of his associates were mainly made on the study of the two latter types; in those cases of estivo-autumnal variety which did come to their notice, it must not be forgotten that the very change of climate which their patients enjoyed may in large measure have contributed to the good results reported. However that may have been, the fact remains that many cases, estivo-autumnal in type, especially those in the more southern latitudes, cases in which the diagnosis has been absolutely proven by the presence of crescents and ovoids in the blood, have not been benefited by quinine or its derivatives, administered in small or large doses, in solid or liquid form, by mouth, rectum, or hypodermically, though it must be confessed that the best results in persistent cases have been obtained by the latter method of administration. Reports of such cases have appeared so frequently in medical literature that their significance can no longer be ignored. The most recent article on the subject appeared in the *Medical Record* of February 7 in a masterly article by Beverly Robinson. The practical result of all this is that necessarily more or less marked changes in therapeutics appear, for the active physician cannot await the decision of scientific discussion when his patients are clamoring for relief from their symptoms. Accordingly, as quinine seemed unable to perform

the allotted task, other drugs were tried with more or less indifferent results.

It is the usual fate with every new preparation that appears that there are always some enthusiasts who, carried away by partial or a few successes, laud their favorite of the hour to the skies. They rush rapidly and eagerly into print, anxious to put themselves on record among the first. Unfortunately, on the inevitable failures that follow fair and impartial trials of so many of our preparations they are silent, not wishing to refute their former lavish praises even for the advance of medical science. It is no wonder that careful and conservative men are chary about using new drugs. The stamp of universal approval and of age is necessary to such as a plea for recognition. Adherents there have been and yet are to methyl blue, arsenic, iron, strychnia arsenate. Among later remedies, nuclein is receiving very favorable comment. This substance is extracted from animal membranes, the spleen, testes, the thyroid, or perhaps more readily obtained from yeast after the method of Vaughan. It may be administered hypodermically or in tablet form, each tablet corresponding to one drop of nuclein.

The germicidal action of the blood has been known for a considerable time. Further experimentation proved that this germicidal action was due to a substance, given the name of nuclein, which was furnished by the polymorphonuclear neutrophiles. Now in chronic wasting diseases, such as tuberculosis and chronic malaria, the blood, of course, deteriorates with the other body tissues. The function of the neutrophiles being thus impaired, less resistance is offered to invasion by micro-organisms. Remember the predisposing cause insisted upon in all infections—lessened physiological resistance from whatever cause. Theoretically, in our treatment, if we can bring the resistance of the blood to invasion to par, either by stimulating the neutrophiles to increased activity or by supplying artificially the substance needed to bring about a physiological resistance, an improvement or cure should result. As a theory all this sounds very plausible; practical trial by Wilson and others contributes instances of perfect cure in cases of undoubted malaria, which had proved intractable to quinine in large doses. Small doses of nuclein (one drop every two or three hours) caused a prompt disappearance of the cachexia, migraine, gastro-intestinal disturbances, hematuria, general depression, and

other so-called malarial symptoms under which the patients were suffering. In view of the resistance of a certain percentage of cases of malaria to cinchona treatment, such reports are, to say the least, interesting, and demand a fair trial for the remedy to prove its efficacy. — *Cincinnati Lancet-Clinic*, April 30, 1898.

#### TREATMENT OF FRACTURES.

The *International Journal of Surgery* in a recent issue prints the opinions of that well known practical surgeon, Dr. ESTES, on this important topic. In regard to fractures of the humerus he points out that the part of the bone most commonly fractured, in his experience, depends to a great extent upon the age of the injured person. Adults seem to have the fractures located most frequently near the surgical neck, and in the shaft of the bone (in the diaphysis), whereas children show a larger percentage of fractures at or near the junction of the epiphyses. Fractures about the condyles are especially common in children.

*Intracapsular Fractures of the Humerus.*—The head of the humerus is rarely fractured except by direct violence. In civil practise, therefore, the intracapsular fractures may be regarded as fractures of the anatomical neck. It is sometimes difficult to make a diagnosis of these fractures without the use of the fluoroscope. In using this instrument in children the epiphysal cartilaginous union is apt to lead to a wrong conclusion, as it is much more permeable to the x-ray than the bony tissues. This must be borne in mind in these examinations therefore. Eliminating this source of error, the fluoroscope is an exceedingly valuable aid in diagnosing fractures of the upper end of the humerus. As it is well known that inspection of the fragments may occur after fractures here, one does not like to employ force or too extended manipulation in order to elicit crepitus. In case of doubt it is safer to treat the injury as one of fracture.

The fractures of the anatomical neck are usually transverse fractures. When impaction occurs, there may be, and indeed usually is, also a longitudinal fracture, a splitting of the tubercles; so the fracture becomes extracapsular in these cases.

When the head is broken off transversely at the anatomical neck the expectation of reunion is not very sure; the author has found that it does take place in most of the

cases, however. He has not yet had necrosis of the detached head occur. He thinks he has seen a few cases in which there was atrophy or absorption of the head after this fracture.

The treatment of intracapsular fractures requires, first, careful manipulation to restore the head to its proper place on the shaft, and then careful placing of the head against the glenoid cavity, so that this counter-pressure may hold the fragments together. A firm axillary pad is needed to prevent the end of the shaft slipping inwards: a well fitting shoulder-cap of leather, or silicate of sodium (plaster of Paris is so friable that unless the cap be made very thick it will crack and crumble, hence it is not so useful as water-glass at this region), or wood fiber, or strong felt should be adapted, and then the whole extremity bandaged from the fingers upward to prevent edema of the fingers and forearm; the elbow should be supported by a bandage which also confines it to the side a little posterior to the axillary line. The author is opposed to early passive movements of the shoulder-joint after these fractures. He thinks at least four weeks should be allowed before any but the most careful and guarded movement be permitted. On the other hand, frequent passive movements of the elbow, wrist and fingers should be employed and begun early to prevent stiffening of these joints.

The immobilization and bandages should be continued for at least four weeks. Then the shoulder-cap may be taken away, and gentle massage and very careful passive movements employed daily, always followed by a fresh bandage, and fixation of the elbow for another two weeks, then a gradual freeing of the elbow, and finally the shoulder may be freed and voluntary movements begun in about eight weeks.

Function is usually restored very slowly after these fractures, especially in middle-aged and old people. The capsule is commonly injured and the bicipital groove roughened; the result is that for weeks after the fracture seems united there is an aching pain, worse at night and when a storm approaches; and a trophoneurosis is apt to result on account of the irritation of the circumflex nerve branches. This condition is very discouraging to the patient and requires persistent treatment by massage, galvanism, and passive movements. The author has also found that the correction of any possible tendency to lithiasis by a graduated alkaline

treatment is of great service when the patient has previously been subject to rheumatism or gout.

#### *Fractures of the Tubercles of the Humerus.*

—As separate and uncomplicated injuries—that is, when not a feature of general comminution of the upper end of the humerus—fractures of the tuberosities of the humerus are rare. The author has seen one case of fracture of the greater tubercle. The greater tubercle is the one generally fractured in these rare cases, and probably muscular contractions cause the injury when not produced by direct violence. The fracture is longitudinal and there is considerable separation, the detached fragment being drawn outwards and upwards by the supra- and infra-spinatus and teres minor muscles. It is very difficult to keep this fragment in place. Relaxation of the muscles by drawing the shoulder backwards should be secured. Then by careful palpation find the small fragment of bone, and push it forward to its place; then hold it in place by a firm compress laid behind and over it, and held firmly down by a strip of adhesive plaster laid on from behind forward. A bandage should then be employed to keep the shoulder back and immobilize the shoulder and arm.

The union will probably be fibrous in adults. The functions of the shoulder-joint are materially lessened; strength and motion are usually impaired for several months. The bandage immobilization should be continued for at least six weeks, then graduated passive movements and massage should be employed. After this a regulated series of active movements in the way at first of "resistance movements," and then light gymnastic exercise, will assist in restoring the strength and activity of the injured shoulder.

Atrophy of the suprascapular muscles sometimes occur. Dr. Hall sums up the result of his treatment in his paper, read before the twenty-eighth annual meeting of the Medical Association of Central New York, October 15, 1895, as follows:

"The result of this case, three months after the receipt of the injury, is briefly stated as follows: Fibrous union, as shown by the mobility of the fragment and the presence of crepitus, has taken place. The humerus is not shortened. There is some inward rotation of the arm, in consequence of which the shoulder-width is increased three-eighths of an inch. The joint function is impaired, motion being considerably restricted



and quite painful. The scapular muscles are wasted, notably so in the infra-spinatus, its extent being shown by the marked depression of the scapular surface. The power of active voluntary motion is diminished. Particularly true is this of outward rotation, which is feebly performed. Some improvement of the present condition will unquestionably follow, and, upon the whole, the probable result will be better in this instance than is usual with cases occurring at an advanced period of life."

*Fractures of the Surgical Neck and Upper End of the Shaft of the Humerus.*—For practical purposes the fractures of the surgical neck and fractures of the upper end of the shaft of the humerus may be understood to mean fractures of the upper third of the shaft. These fractures are the most common ones met with in subjects past maturity. They are usually oblique. If the fracture is immediately below the tuberosities the difficulty will be in preventing the scapular muscles rotating the upper fragment outward. The lower fragment, though drawn upward and inward for some distance, as a rule occasions very little difficulty after it has been thoroughly reduced. Fractures lower down between the attachments of the latissimus dorsi, the greater pectoral, and the deltoid are difficult sometimes, also, on account of rotation and the tilting upward of the fragment.

In reducing these fractures, after extension in the line of deformity (which will be slightly outward, the elbow abducted) has brought the end of the lower fragment in apposition with the rim of the upper fragment, the elbow should be carried to the side and held within an inch or two of the side of the chest, and the arm rotated outward, so that the hand shall be in a supinated position. While an assistant holds the forearm and elbow in this position, the surgeon should attempt by pressure directly over the upper fragment and by drawing the shoulder backward to bring the upper fragment into accurate apposition with the lower. A strip of adhesive plaster about seven or eight centimeters (three inches) broad, laid on from before backwards, beginning at the groove between the pectoral and deltoid muscles and passing over the head and tuberosities of the bone, then fastened to the back and opposite side, will assist in maintaining this apposition. An axillary pad will be necessary; this ought to be of some aseptic absorbent material, such as sterile absorbent cotton covered with sterile gauze, and should be laid

in place after the axillary space shall have been thoroughly bathed with soap and water, and then with alcohol. A molded shoulder-cap of leather, wood fiber, or thick felt well padded, should be firmly bandaged in place, the arm immobilized while the extension is kept up at the elbow, and this extension preserved by turns of the bandage from before backwards and downwards across and around the lumbar region. If the elbow is free, the author has found the patient usually moves it too much; it should not be supported in the sense of being pushed upwards. He thinks it best to immobilize it and keep extension on it as much as necessary. He has not found plaster of Paris a good material for splinting fractures of the upper part of the humerus nor about the shoulder-joint. It is apt to crack and crumble and is too cumbersome.

The matter of keeping the elbow near the side while reducing and holding these fractures is of great importance. For this reason it is very difficult to set these fractures properly while the patient is in a recumbent position. He should be sitting, or if he can, standing upright. Anesthesia in reducing these fractures should not be used, therefore. Happily it is rarely required. In a recent case the author found so much pressure was necessary to hold the fragment down that he employed a segmented Levis' shoulder-cap, one which could be placed at various angles; in this way graduating pressure was employed and controlled the tilting.

#### THE SURGICAL OCCLUSION OF THE CEREBRAL SINUSES.

STRATTON (*Annals of Surgery*, August, 1898), stimulated thereto by difficulties encountered in the removal of a large brain sarcoma which had invaded the longitudinal sinus, contributes a timely and excellent article on surgical occlusion of the sinuses. He says that the latest work from the American press, dealing quite thoroughly and authoritatively with the subject of cerebral surgery, unqualifiedly asserts with reference to the sinuses that "when necessary to attack them they may be ligated and divided." This statement, together with the declaration, by the same author, that clamps may be used instead of ligatures, without reference in either case to the necessity of adopting any other mode of procedure than would be necessary in dealing with a vein with its easily collapsible walls, is certainly mislead-

ing. Yet the statements of that author give but the same impression which is conveyed by the study of the writings of others who have practised or upheld the use of the ligature. To follow at least their implied method is to invite defeat and subject the patient to grave danger.

Even when the overlying portion of the calvarium has been successfully removed, the determination of the location of the borders of either the longitudinal or lateral sinuses, to which this paper primarily refers, is difficult or even impossible, unless by suitable incisions in the dura the sense of sight and even touch is allowed a freer range to establish their situation. And without that knowledge, to blindly pass the ligature, even if we are not to consider the probable damage to the cerebral tissues which that procedure entails, and are so fortunate as neither to puncture the sinus nor wound a pial vessel, and include within the ligature only the proper amount of the dura beyond either border of the sinus, there still remains two dangers before occlusion can be effected. The *sinus may be lacerated* as the ligature is drawn taut, with the result of having a troublesome or an appalling hemorrhage, or *pressure upon the cerebral substance may be produced* by increasing the tension of the dura and depressing it below its normal position. The possibility of both of these disadvantages exists by reason of the firmness and elasticity of the dura mater.

If neither of them is to result, in case relaxation of that membrane does not exist as one of the conditions inducing operation, or has not been effected by the surgeon, as the ligature is drawn tight the dura or falx—or the tentorium, if the lateral sinus is being operated upon—must tear sufficiently and in such a direction as to permit easy and safe approximation of its walls. That they would do so to such an extent as to allow no material degree of tension of the dura, or in such a direction as not to involve the walls of the sinus, are chances so small that the risk is entirely too great to be assumed.

Of course, coincidentally with the tightening of the ligature the dura could be suitably incised, and thereby cerebral pressure and laceration of the sinus avoided; and even after tying the ligature, incisions of the dura would relieve pressure upon the cortex of that membrane. But the advantages of making the incisions in the dura prior to passing the ligature are so great that, since that tissue is to be incised, it should be done at such a

stage of the operation as will permit advantage to be taken of it in the avoidance of the danger of wounding the cortex, sinus, or the veins entering it.

The possibility of puncturing the pial vessels in the passing of the ligature should be especially emphasized. It amounts to a degree of danger so great as to forbid its performance without visual guidance. At their juncture with the sinus most of these veins are of considerable size, and in some of the pathologic conditions requiring operation may be much larger and more tortuous than they normally are, and their walls being extremely delicate make them easily susceptible to laceration. Nothing less than the cautious incision of the dura—except in children in whom this membrane is translucent—and the accurate placing of the ligature by the sense of sight will guarantee against a troublesome hemorrhage from this source. It would be possible for even a fatal subdural extravasation of blood to gradually take place without the operator's knowledge, unless the dura were incised to permit its discovery and prevention.

As far as relates to the control of hemorrhage, the ligature has been used with success a number of times. Ashhurst in 1885, in referring to wounds of the sinuses, states that "ligation has been occasionally practised." Kammerer in 1889 ligated the longitudinal sinus an inch or so above the torcular Herophili as a preliminary to the removal of a sarcoma involving the dura above the sinus. Park mentions ligation and even resection as legitimate procedures. Starr refers approvingly to tamponment, forceps pressure and suture of the sinus in case of hemorrhage, and Keen states that in the same condition "the sinus has been tied by two ligatures." But none of these writers, however, call attention to the unwarrantable degree of cortical pressure which the use of the ligature or clamp may entail.

Nor has the danger of laceration of the sinus during the tightening of the ligature apparently been sufficiently realized or emphasized. Macewan, however, in order to avoid that accident, recommends a method practically the same as that mentioned by Ashhurst, of securing occlusion by separating the outer wall of the sinus from the skull, and pressing it inward into the lumen of the sinus, and tamponing the intervening space. This seems to be a method especially adapted to the rapid relief of hemorrhage—and it is in this connection mentioned by

Ashhurst—rather than a procedure to entirely prevent it, and to be generally commended in deliberate surgical attack upon a sinus.

It can be advanced as a proper objection to this method of securing occlusion in formal resection the general impossibility of knowing prior to the time of operation the necessity of the destruction of the sinus or of estimating the extent to be excised, should that be found necessary; the borders of the bone opening will seldom be so located that this procedure could be adopted without sacrificing a greater extent of the sinus than would be required by a method permitting greater freedom of choice in locating the site of occlusion. In its bearing upon the subsequent establishment of the anastomotic circulation this is a matter of much importance.

The greater sense of security which other methods give will also cause this procedure to be followed in a comparatively small proportion of cases, other than for the relief of accidental hemorrhage.

The application of the clamp presumes almost necessarily the exposure of the sinus, and in effecting this it would generally happen that sufficient relaxation of the walls of the sinus to permit their easy approximation had been effected. If, however, this has not been provided for, danger of laceration of the sinus or brain-pressure would exist, as in the case of the use of ligature. The degree of the liability to bleeding is less, however, with the clamp, by reason of the greater width which it possesses, with consequently less likelihood existing of its tearing or cutting its way directly into the sinus as the ligature might do.

Providing the preliminary work of the surgeon has not caused sufficient relaxation of the dura, or it does not exist as the result of traumatism, formal incisions along at least two of the borders of the sinus are necessary to prevent the danger of hemorrhage or pressure; and while choice can be made of any two, those generally the most accessible and therefore the most easily and safely incised are the two superficial borders. However, it may possibly happen that the conditions of the operation will make the deep border sufficiently accessible to permit incision in that locality. Especially is this to be preferred in cases where it is unnecessary to remove both lateral walls of the sinus. By making incisions along the deep and one lateral border a tumor involving only the

wall on that side might, after effecting occlusion of the sinus, be removed by exsecting only the wall involved. If the small incision in the dura on the side opposite the growth, made to allow the safe application of the ligature by inspection, is accurately sutured before the ligature is tied, the dura on that side would be left intact. A decided advantage would thereby be gained.

Due consideration must be given to the important functions of the supporting membranes of the brain, and no incisions should be made of greater length than are absolutely necessary to accomplish the end sought. Long incisions are unjustifiable. Thus, if the falx, or tentorium, or even the dura in the neighborhood of either of these, is extensively incised, the proper relation which one portion of the brain should permanently bear to the other is destroyed. With change of position of the head the weight of one hemisphere would have to be sustained, in part at least, by the other, or the cerebellum would be unduly pressed upon, according to the site of the incisions. A small disturbance of the cerebral support and equilibrium would be associated with disturbances either troublesome or grave, according to the amount of disability existing in these membranes.

The advantage which properly constructed clamps possess over ligatures lies principally in the relative ease and speed with which they can be applied. Thus far their use has not been attended with hemorrhage upon removal, a fact to be accounted for by reason of the low degree of blood-pressure in the sinuses. However, experience in their use has not yet been so abundant as to disprove this to be a real danger, and if the patient's condition is such as to permit the cautious application of ligatures, their use is to be preferred.

If clamps are used, they are incorporated with the wound coverings and removed with the first change of dressings at the expiration of from one to three days. Nor do they by requiring an open wound interfere with union. As is well known, even when these wounds pursue an aseptic course, the free discharge of bloody serum requires drainage for several days at least, and the openings left for the clamps can be utilized for that purpose.

To prevent the failure of the establishment of the collateral circulation, the author would strongly urge that the following precautions be taken in deliberate operations for lesions, the symptoms of which suggest the possi-

bility of requiring destruction of a cerebral sinus:

1. Prevent excessive loss of blood by the application of the tourniquet firmly to the scalp, and prompt occlusion of bleeding points on its removal; also by rapid bone-section and tamponment of the resulting sulcus. Starr states that the method of preventing hemorrhage by the application of the tourniquet to the scalp is a failure, but the author's own experience has taught him its great value at least in certain cases. If much oozing of the blood occurs upon incising the dura, rapidly complete the necessary incisions by the assistance of a delicately grooved director and apply tampons. Avoid puncturing the pial vessels.

2. The bone and scalp flaps having been raised and hemorrhage stopped, conclude the operation at this stage according to the method advised by Park in operations on the brain in which there is danger of shock, by inserting between the edges of the scalp a layer of gauze to which an antiseptic ointment has been applied. In a week or two, when the effects of this stage of the operation have passed off, conclude the second stage.

If, however, the circulation of the patient lacks vigor, or if for any reason there is doubt as to the second stage being concluded without shock, in addition to the above make dural incisions necessary to permit the proper application of ligatures or clamps; apply these and partly close the lumen of the sinus with a view of performing gradual occlusion. This is to be effected by partially tightening the ligatures or closing the clamps about every second day, until, in the course of one or two weeks, the sinus is entirely occluded, and thus, by the time the patient's condition warrants the concluding part of the operation being performed, the collateral circulation will have been already established and the possibility of blood stasis and thrombosis reduced to a minimum.

The same circulatory conditions which would cause the method of gradual occlusion to be adopted as a part of the preliminary stage should induce its being followed in the secondary operation, should shock supervene at any time during its performance, or should pial veins, taking an important part in the anastomotic circulation, be accidentally injured or destroyed by the necessities of the operation. This would cause the concluding steps of the operation to be still further delayed, but however unde-

sirable and although attended with increased risks of sepsis is, in the author's opinion, under the circumstance named to be strongly commended.

3. During the performance of the final stage of the operation and after occlusion of the sinus, should extensive hemorrhage occur or should there be any tendency for the pulse to become soft, small or feeble, maintain a proper degree of blood-pressure by having an assistant perform at once intravenous saline transfusion—a vein having been previously exposed, should the necessity of this seem at all probable. Or Esmarch's bandages may be applied to the extremities, or the two procedures may be conjoined.

Further than this, prevent any tendency to shock by proper stimulation with alcohol, strychnine, etc., by operating rapidly and having all contingencies provided for and allowing only the least possible amount of the anesthetic to be administered.

4. Avoid especially injury to the veins of the pia mater, through which the blood-current is to be maintained after occlusion of the sinus is effected. This includes not only laceration or puncture, which would require ligation, but also all those procedures which tend to maintain the vitality of the parts locally and prevent hernia cerebri. Among these factors can be mentioned rigid aseptic technique, the avoidance of traumatism, and osteoplastic or heteroplastic operation on the skull. It can be readily seen that even a slight protrusion of the cortex beyond the level of the internal surface of the skull would occlude the lumen of any vein traversing its surface by compressing it against the border of the bone opening. Also the long-continued vomiting, and possibly even the cerebral pulsation which results from removal of the firm bony support to the brain, will, if the dura has been extensively incised, produce such a degree of traumatism of the delicate cortical substances as to induce not only a local cerebritis, but even softening and disorganization. A vein traversing such an area would be destroyed even if hernia cerebri did not cause its occlusion.

5. During and after the operation have the posture of the patient such as will maintain a proper degree of pressure within the cerebral blood-vessels and facilitate the flow of blood through the sinus and the vessels concerned in the anastomotic circulation. The head should be on a level with the body and the face directed upward.

6. If vomiting continues for any consider-

able period subsequent to the operation, administer salt solution per rectum, and thus assist in maintaining the fluidity and proper degree of pressure of the blood.

*PROTARGOL AS A SUBSTITUTE FOR NITRATE OF SILVER IN OPHTHALMIA NEONATORUM AND OTHER CONJUNCTIVAL DISEASES.*

CHENEY (*Boston Medical and Surgical Journal*, Aug. 25, 1898) states that during his recent four months' service at the Massachusetts Charitable Eye and Ear Infirmary he has used protargol in one hundred and thirty cases, and it seems to possess all the advantages of nitrate of silver and none of its disadvantages. The very slight degree of irritation which it causes, and in a large proportion of cases the almost complete absence of pain, are its chief points of recommendation. A ten-per-cent. solution causes rather less flushing of the eye and discomfort to the patient than a one-per-cent. solution of nitrate of silver. A two- or four-per-cent. solution can be used without cocaine and the irritation is not, as a rule, more than would be induced by a one-half grain to the ounce solution of zinc sulphate.

There have been an unusually large number of ophthalmia neonatorum cases this summer, and the author has used this remedy in twenty-five instances. In ten of these he has used protargol in the right eye and nitrate of silver in the left, in order that the results might be more accurately compared. A two- or four-per-cent. solution was used, more often the latter, and a one- or two-per-cent. solution of nitrate of silver. The silver was applied to the conjunctiva in the usual way with a camel's-hair brush and in some cases with absorbent cotton, while in a few cases a quarter dropper full of the solution was emptied over the conjunctiva. When applied with absorbent cotton, the cotton was used on the end of a probe and the protargol was sopped on the conjunctiva, not brushed roughly over it. The lesser degree of irritation in the protargol eye was usually very noticeable. There was not the profuse lachrimation and the eye would often be open in a minute or two after the application, while the nitrate of silver eye would be tightly closed. It was also observed that there was less tendency to the formation of a fibrinous coagulate, the grayish shreds of tissue and "false membranes" in the protar-

gol eyes. In regard to the rapidity of the decrease and duration of the discharge, there is such a variation in different cases and often in the eyes of individual cases that it is impossible to judge with any degree of certainty. The author states, however, that in this respect the two remedies rank about equal.

As a prophylactic, Dr. William L. Richardson, who has used protargol at the Lying-in Hospital, very kindly writes the author the following:

"Protargol (two-per-cent.) has been used in every baby's eyes at birth for about three months. None of the redness and swelling of the lids and none of the temporary secretion that immediately follows the use of nitrate of silver (one-per-cent.) have been observed. In the few cases of purulent ophthalmia that have been treated with protargol the length of the course of the disease has apparently only been slightly shortened, but the severity of the attack has been decidedly lessened. Whether this has been due to the protargol or not, we have been, during the three months it has been used, more successful in confining the infection to one eye."

The fact that nitrate of silver does cause more or less irritation has prevented its very general use as a prophylactic outside of lying-in hospitals. If protargol is as valuable, and it in all probability is, this objection is overcome, and it is to be hoped that it will be generally adopted in routine practice.

The author has had but two cases of gonorrheal ophthalmia in the adult this summer, and protargol was used in both. In the first the cornea was extensively infiltrated when the patient came in, and, as was to be expected, it perforated two days later. The second case was of less severity and made a rapid and satisfactory recovery.

In acute conjunctivitis protargol was used in fifty-three cases. Most of them recovered promptly, but perhaps not more rapidly than they might have under some of the other commonly used remedies. In a few cases recovery was slow and they seemed to do better under a collyrium of zinc sulphate and boric acid. It was generally prescribed in a one-half-per-cent. solution dropped into the eyes every three or four hours. In twenty-nine cases of chronic conjunctivitis it acted very favorably in some, in others it seemed to have no especial action one way or the other, and in one case it proved a decided irritant. In twelve cases of chronic granular

conjunctivitis a four-per-cent. solution was used, and in three or four cases a ten-per-cent. solution. It seemed as satisfactory in its results as silver nitrate and was certainly much more agreeable to the patient. It was also tried in ten cases of lacrimal obstruction with purulent secretion. In two or three cases where it was prescribed as a one-half-per-cent. collyrium, the discharge ceased entirely within a few days. In other cases where the discharge was profuse it was injected into the sac in a four- or ten-per-cent. solution. The discharge usually lessened, but perhaps not more rapidly than it would have done under various other remedies.

#### THE QUESTION OF THE CURABILITY OF CANCER OF THE BREAST.

J. COLLINS WARREN makes a valuable contribution to this subject in the *Boston Medical and Surgical Journal* of August 25, 1898. He says that of the tables given in his article, including seventy-two cases, covering an interval of fifteen years, they do not include all cases operated upon during that period, as the histories of many of the earlier ones could not be obtained, and many had to be thrown out, owing to imperfect pathological records. Of the seventy-two cases there are twenty-six known to be alive at the present time, and thirty-eight known to have died. Of the latter, there were, however, two cases in which death occurred of other diseases than cancer, and that too long after the danger limit had been passed. In other words, nearly half of the cases are known to be living to-day or to have died of other diseases than cancer.

Of the twenty-six living cases there are three who now have recurrence of the disease, and four who have had a recurrence but have remained well at the present time. We find that in the fifty cases in which recurrence took place there were thirty-four local recurrences and only eight in which the field of operation remained in a healthy condition.

Such statistics emphasize the importance of strict attention to the rules now laid down, namely, the removal of a large margin of the cutaneous covering of the breast, a careful deflection of the edges of the wound, removal of the subcutaneous fat for a considerable distance around the mammary gland, the removal of the pectoral muscles, and a minute and painstaking dissection around the sheath of the axillary vessels.

In only one of the successful cases was there a dissection of the supraclavicular glands.

In regard to the situation of the growth we find that in twenty-five cases no statement is made as to the locality. This leaves forty-seven cases. In thirteen of these the disease was found in the upper and outer quadrant; in the upper and inner quadrant in six cases; in the central region in six; in the upper hemisphere in five; in the lower and outer quadrant in five; in the outer hemisphere in three; in the inner hemisphere in one.

These figures show that the disease is more frequently found in the upper and outer quadrant than in any other quadrant, in the upper hemisphere more frequently than in the lower hemisphere, and in the outer hemisphere more frequently than in the inner hemisphere.

The periods during which recurrences are observed are also of value. In nine cases it was not possible to learn the date of recurrence, but of the other forty-one cases thirty-seven occurred during the first three years; of the remaining four cases two recurrences were found between three and four years, and two between five and nine years. One of these exceptionally late recurrences was a colloid cancer in which an axillary gland evidently had been overlooked. In the case in which a nodule was removed from the pectoral region nine years after the original operation, it seems reasonable to assume that a new infection had taken place in a para-mammary gland. The existence of these glands is now well recognized by anatomists, and the fact shows the importance of including all such adjacent gland tissue in the field of operation.

Taking the three years' limit as the gauge of success, there are seventeen such cases. Two of these are dead, one dying ten years after the operation of apoplexy, and one dying of sporadic cholera six years after the operation. Three of these have had recurrences, one in the axilla and two in the pectoral region. These nodules were removed, and the patients are now alive and well, one of them three years, one four years and one ten years after the last operation. Of the remaining twelve, the operation was performed in three cases over three years ago; in four cases over four years ago; in two cases over five years ago; in one over nine years ago; in one eleven years ago; and in one case over twelve years ago.

An analysis of the diagnosis in these seven-

teen cases shows that nine were reported to be cases of "cancer," six reported as cases of "scirrhous," one medullary cancer, and one colloid cancer.

The percentage of cures, or those which have passed the three years' limit in fifty-five cases, is 30.9 per cent.

In estimating these results it should be remembered that the operations extend over a period of fifteen years, and that the earlier operations do not compare with the later ones in thoroughness. They do, however, cover that period in which the axilla was dissected in all cases, but of the earlier operations not much more can be said than this.

If now we begin with January 1, 1893, and take in all those cases which come up to the three years' limit—that is, up to April, 1895, or just three years ago—we find twenty-two cases with eight cures, or a percentage of cures of 36.3 per cent.

Comparing these figures with those which are given in statistics collected by Dowd, we find 199 cases, with 71 cures, or 39.6 per cent.

This percentage seems remarkably high for so large a series, but it includes Rotter's series with 50 per cent., including only 15 cases, and Cheyne's with 57 per cent., including only 33 cases.

#### GUNSHOT INJURIES OF THE SPINE, WITH REPORT OF A CASE.

Under this title PREWITT presents a careful review of the subject in the *Annals of Surgery* for August, 1898. He concludes as follows:

It is the duty of the surgeon to advise immediate operation in all cases of gunshot wounds of the spine, provided the wound has involved the posterior or lateral parts of the spine at an accessible part; unless the condition of the patient is such as to indicate clearly that he is hopelessly stricken.

To wait to see whether Nature is competent to restore the damage is to wait until irreparable damage has been done in many cases—rapid degenerative changes, meningitis, and myelitis. The delay permits of the continuance of conditions, the removal of which is the purpose of the operation. These considerations apply with greater force, if possible, in gunshot injuries than in others.

The presence of complications due to penetration of the great cavities and injury of

the viscera will influence the question of operation, but not necessarily forbid it.

#### THE ABORTIVE TREATMENT OF ERY- SIPELAS.

Dr. LABIT (*Bulletin Général de Thérapeutique*, 1898, p. 540) recommends the use of a ten-per-cent. solution of iodol in colloidion.

The affected area is thoroughly painted with this and the coat extended for an inch over the healthy skin. If the hairy scalp is invaded, it is first carefully shaved, then painted. That the iodine contained in the iodol is absorbed is shown by its appearance in the urine. Frequently within twenty-four hours all symptoms of the disease will disappear. It is not claimed that iodol is the only specific for the streptococcus of Fehleisen; doubtless other antiseptics can produce the same result. The pressure produced by the colloidion and its penetration, carrying with it the remedy into the tissues, is important. The method is not painful, but, on the contrary, is anodyne. The results tend to show that at first the disease is local, and since this is so no general treatment has been employed. —*American Journal of the Medical Sciences*, August, 1898.

#### THE HERNIAS OF CHILDREN.

Dr. W. B. COLEY (*Archives of Pediatrics*, April, 1898) states that in upwards of 300 operations for hernia in children under fourteen years of age he has had but one death, and that was from pneumonia. In seven operations in children under two years of age there was but one death, the patient being moribund at the time of the operation.

Bassini's method of operation is preferred. In four cases out of seven the cæcum was found in the sac. Strangulation in infants is more common than is generally appreciated, and not infrequently arises from the bad advice to postpone wearing a truss until the age of one year.

As to treatment, gentle taxis should be tried for one or two minutes; if this fails, applications of hot cloths should be made for from fifteen to twenty minutes, followed by taxis under chloroform, after all preparations for operation have been made. If this is also unsuccessful, immediate operation is to be undertaken. An attempt at radical cure can, in the great majority of cases, be made with safety.

## Reviews.

THE PRINCIPLES AND PRACTICE OF MEDICINE. By William Osler, M.D. Third Edition. New York: D. Appleton & Co., 1898.

There are few books which receive professional confidence and esteem to the extent of that received by Dr. Osler's well known work, for three large editions have been presented to us in a period of about six years. The book appeared at a time when there was a need for a new work on this subject, and possessed a touch of originality which set it apart from its competitors. Each new edition has shown increasing care in editing the pages, and many sentences which were evidently dictated and inelegant have been revised. This particularly is the case in the present edition. In the department of therapeutics erroneous statements have also been corrected, but this part of the volume is still its feeblest part, as it is perhaps the portion to which its distinguished author has devoted least attention. This is all the more unfortunate in that in this portion the text is particularly assertive and dogmatic. While these views may be those of the author, less respect is shown the views of others in this portion than in pathology and symptomatology, and the rather sneering allusions to recognized therapeutics indicate a disregard of the whole object of medical research, namely, the care of the patient. Thus under erysipelas we are told in a very imperfect and impractical way of the treatment to be instituted, and finally it is stated that while ichthyol is much used cold water is "as good an application as any," all of which proves that the author either has not tried the present methods or has studied their results so carelessly as to fail to grasp the results accruing. Dogmatism is wise only when based on observation.

The present edition has evidently been revised thoroughly and we believe entirely reset in type. The first article on typhoid fever shows careful revision, and a very pleasant feature of it is that in the treatment of this disease the author, while indorsing the Brand treatment, recognizes for the first time that it has many limitations and that it can be modified with advantage at certain times and in certain cases. This is certainly the correct therapeutic attitude.

Dr. Osler's discussion of appendicitis is wise and conservative, for while he appreciates the fact that an operation is very often

essential, he recognizes that all cases do not need operation. He refers to the so-called "appendicitis fad" and quotes the case of a physician who suffering from ordinary "bellyache" called in a friend, who at once removed his appendix!

A BLOOD CHART. Designed by J. C. Da Costa, M.D. Philadelphia: The J. B. Lippincott Company, 1898.

To those who do work in clinical medicine of a careful character microscopical and chemical examinations are necessary, and often it is important to preserve records of these examinations in a diagrammatic manner, just as it is useful to have a temperature chart. This chart has been designed for the purpose of preserving blood records. Spaces are provided at its top for the necessary information regarding the case, and in the body of the chart spaces are also made for the date, color index, grammes of hemoglobin, specific gravity of blood, percentage of hemoglobin, and the number of white and red blood cells, while at the bottom of the chart are spaces for the record of the various forms of red and white cells. Such a chart is a difficult one to prepare, and Dr. Da Costa seems to have succeeded very well in filling all the requirements of the case.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS. With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By Hobart Amory Hare, M.D. With special chapters by Drs. G. E. De Schweinitz, Edward Martin, and Barton C. Hirst. New (7th) Edition, thoroughly revised. Illustrated. Philadelphia: Lea Brothers & Co., 1898.

The following is the preface to the seventh edition:

"The continued favor shown by students and practitioners of medicine toward this book, once again exhausting a large edition in about nine months, has naturally given its author great pleasure, because this favor indicates that it brings to their hands information which proves valuable in actual practise. In the preface to the last edition the author stated that every endeavor had been made by rewriting the text and carefully preparing new articles to keep the book abreast of the times and as useful as before. Equal attention has been given to the present issue, and in addition a number of illustrations designed to elucidate descriptions of technique or therapeutic results have been inserted.

"The opportunity has been embraced to make the text conform not only, as it has done, to the Pharmacopœia of the United



States, but also to the British Pharmacopœia of June, 1898.

"By these constant endeavors to maintain the object for which the book was written, it is hoped that it may remain popular with medical readers."

**PRACTICAL DIAGNOSIS.** The Use of Symptoms in the Diagnosis of Disease. By Hobart Amory Hare, M.D. New (3d) Edition, revised and enlarged. Illustrated in colors.

Philadelphia: Lea Brothers & Co., 1898.

The following is from the preface of this edition:

"The fact that three large editions of this book have been called for in two years indicates that it has found favor with practitioners of medicine. No less pleasant to the author is the fact that an equal popularity has attended it in Great Britain. These facts have served to stimulate him to constant endeavor to maintain its usefulness. The text of this, the third, edition has been carefully revised, much important new matter added, and new illustrations, taken from life by photography, have been introduced to render the text more practically useful. The endeavor has been to make this edition prove a companion volume to the seventh edition of the author's Text-book of Practical Therapeutics, which is published simultaneously. With these additions the author hopes that the volume will continue to deserve the favor with which it has so far been received."

**PERNICIOUS FEVER.** By Dr. Joao Vincente Torres Homem, of Rio Janeiro. Translated by Surgeon George P. Bradley, U. S. N.

Detroit, Mich.: William M. Warren.

This small octavo volume deals with a subject which has recently come to possess extraordinary interest to many physicians in this country by reason of the fact that many soldiers are returning from Cuba and Puerto Rico suffering from forms of malarial fever which heretofore have not been met with by American practitioners. The volume first deals with the symptoms of pernicious fevers, then with the diagnosis of the various forms, which the author discusses under the heading of Algid, Ardent, Comatose, Cerebro-meningeal, Convulsive, Delirious, Neuralgic, Pneumonic and Rheumatic Pernicious Fever. Finally, the volume closes with a discussion of the pathological anatomy and with a chapter upon treatment.

As a brief handbook of this subject, at the cost of twenty-five cents in paper, fifty cents in cloth, the volume is well worth having.

**WOUNDS IN WAR.** The Mechanism of Their Production and Their Treatment. By Surgeon-Colonel W. F. Stevenson.

New York: William Wood & Company, 1898.

This book, founded on the author's lectures in the Army Medical School, is destined to indicate the lines on which the modern treatment of wounds in war should be carried out in special injuries of particular parts of the body, and to point out what methods are calculated to bring about the best results in the preservation of lives and limbs in individual cases.

The first chapter is devoted, in the main, to portable firearms and mechanical projectiles and is one of exceeding interest. As is natural, the author decides that the Lee-Netford is the best military small arm in existence.

The next chapter is devoted to the characteristics of the injuries produced by projectiles. We find here a most instructive discussion of the injuries produced by small bores and the theoretical and true explanations of the explosive effect, together with illustrations. The third chapter is devoted to the primary phenomena and symptoms of gunshot wounds, including of course pain, shock, and hemorrhage.

The general treatment of wounds is next discussed, after which are taken up certain regions, such as joints, long bones, the head, the neck, the spine, the chest, the abdomen, etc. There is a chapter upon the effect of the use of modern small arms in the wars of the future, particularly in its relation to the surgeon's work, and a final one upon the Geneva Convention.

The book is a thoroughly readable one, and its contents should be well known by every military surgeon.

**AN AMERICAN TEXT-BOOK OF GYNECOLOGY, MEDICAL AND SURGICAL, FOR PRACTITIONERS AND STUDENTS.** Edited by J. M. Baldy, M.D. Second Edition, revised.

Philadelphia: W. B. Saunders, 1898.

This second edition of *An American Text-book of Gynecology* has been called for because of the popularity of the works edited by Dr. Baldy. Its revision has been necessitated by the rapid and progressive advances in gynecology. Many of the most important subjects are considered from an entirely new standpoint, and new chapters have been added, one particularly on technique and after-treatment. The authors who have contributed to this volume are: Henry T. Byford, J. M. Baldy, Edwin B. Cragin, J. H. Etheridge, William Goodell, Howard A.

Kelly, Florian Krug, E. E. Montgomery, William R. Pryor, and George M. Tuttle. They are all teachers in this branch of surgery in leading medical schools and hospitals and are all acknowledged as authorities. Dr. Baldy states that the work embodies, as nearly as possible, the combined opinions of all of the authors, and that his object is to make it thoroughly practical in its teaching, so that it may be a working text-book for physicians and students. In this he has thoroughly succeeded. The book has a wealth of illustrations and will hold its place in the front rank of a branch of surgery traversed by a number of admirable text-books.

A MANUAL OF MODERN SURGERY, GENERAL AND OPERATIVE. By John Chalmers Da Costa, M.D. Philadelphia: W. B. Saunders, 1898.

It is with the assurance of finding a clear, concise, accurate and comprehensive book on modern surgery that the reviewer opens the second edition of this admirable work by Da Costa. It is admitted by the author to occupy a ground between a text-book and a compend and has, he states, been practically rewritten. Among the changes to be noted are the addition of sections on the surgery of the liver and gall-bladder, the spleen, the pancreas, the female breast, wounds inflicted by modern projectiles, electrical injuries, and the use of the Roentgen rays. He has also described all the newer operations which have been proven of distinct value.

This work is worthy of the highest praise. It is destined to be both a text-book for the student and a handbook for the practitioner, and will add to the reputation of its distinguished author.

A MANUAL OF SURGERY FOR STUDENTS AND PRACTITIONERS. By William Rose, M.B., B.S. Lond., F.R.C.S., and Albert Carless, M.S. Lond., F.R.C.S. New York: William Wood & Company, 1898.

In this book of eleven hundred and odd pages the authors have endeavored to present the facts of surgical science in a concise and succinct form so as to satisfy the needs of the student and at the same time the requirements of the general practitioner.

As is customary in all such works, the opening chapters are devoted to inflammation, suppuration, ulceration, gangrene, sepsis, and infection. The text on these subjects represents the teaching of the day.

In dealing with wounds modern surgeons are somewhat surprised to find the method used at King's College Hospital described as practicable and efficient. This method is as

follows: "The *hands* of the surgeon must be rendered pure by washing them thoroughly with soap and water; the nails must be cut, if need be, and cleansed, special attention being directed to the reflection of skin at their base, where septic material is so apt to collect; for this purpose a purified nail-brush may be employed with advantage. The hands are then immersed in carbolic lotion (preferably 1 in 20), which penetrates the skin and acts more efficiently than a sublimate solution." The objections to this method are: (1) that it is inefficient; (2) that a 1:20 carbolic solution so numbs the hands as to render them practically useless; (3) that it will set up in such people an acute dermatitis, rendering it entirely impossible to sterilize the hands, even by efficient methods, after five or six washings in 1:20 carbolic solution. Such teaching tends to lessen confidence in the practical experiences and modern knowledge of the authors.

We find three varieties of shock—active, torpid, and erythritic—certainly not a good classification for the student nor a serviceable one for the practitioner. The paragraph on diagnosis is quite useless.

Throughout the book there is a use of italics and black print not always happy in its effect, which should be to concentrate the reader's attention upon points of cardinal importance. Also there are many pages of fine print, the reason for which does not seem obvious.

In discussing hernia the authors hold that the radical cure is not an essential but only a desirable means of treatment, and describe in full the method of Mitchell Banks.

In due fairness it should be said that the authors have succeeded in presenting the science of surgery in a comparatively limited space. It cannot, however, be claimed that this has not been done as well by others, nor are the teachings of this work more modern.

ATLAS AND EPITOME OF OPERATIVE SURGERY. By Dr. Otto Zuckerkandl. Authorized Translation from the German. Edited by J. Chalmers Da Costa, M.D. With 24 colored plates and 217 illustrations in the text.

Philadelphia: W. B. Saunders, 1898.

This work, which is apparently designed mainly as an aid for the student in his operative work on the cadaver, is characterized by profuse and excellent illustrations. The operations are described concisely, the most modern methods have been included, and the book is designed to be serviceable to the practising surgeon.

ATLAS OF SYPHILIS AND THE VENEREAL DISEASES. Including a Brief Treatise on the Pathology and Treatment. By Prof. Dr. Franz Mracek. Authorized Translation from the German. Edited by L. Bolton Bangs, M.D.

Philadelphia: W. B. Saunders, 1898.

The greater part of this book is taken up by seventy-one plates, nearly all colored, reproduced from water-colors with surprising fidelity to pathological appearances. Attached to each plate is a signature embodying the history of the case, the condition at the time the picture was taken, and the treatment and its results. There follows 117 pages of text, embracing syphilis, venereal ulcer, and gonorrhea. There is thus presented at a moderate cost an atlas the illustrations of which are of unusual merit, and a summary of treatment so arranged as to admit of immediate reference.

A CLINICAL MANUAL OF SKIN DISEASES. By W. A. Hardaway, A.M., M.D. Second edition, revised and enlarged.

Philadelphia and New York: Lea Brothers & Co., 1898.

This second edition of Hardaway's manual, thoroughly revised and containing the most recent therapeutics which are found serviceable, is destined to receive even more favorable attention than that which was accorded the first edition. There is a handier system of classification, and the book is better suited to the needs of the general practitioner. It should be noted that the greater bulk of the volume is devoted to diagnosis and treatment.

There are a number of excellent illustrations and the text is clear and direct. It is unfortunately true of skin diseases that many of them are persistent under the most skilful treatment. By following the directions given in this manual the practitioner may, however, have the satisfaction, even in the more difficult cases, of knowing that he is doing the best for his patient that science has to offer.

Those fond of prescriptions will be gratified by the very large number of excellent ones to be found in this work.

LECTURES ON TUMORS. By John B. Hamilton, M.D., LL.D. Third Edition.

Philadelphia: P. Blakiston, Son & Company, 1898.

In this the third edition of Hamilton's well known brochure is an entire rearrangement of nomenclature and illustrations. The work is intended for students and to serve as a recitation book, and seems well fitted for this purpose.

HANDBOOK FOR THE HOSPITAL CORPS OF THE U. S. ARMY AND STATE MILITARY FORCES. By Charles Smart, Deputy Surgeon-General, U. S. A. Approved by the Surgeon-General of the Army.

New York: William Wood & Company, 1898.

This revised edition of Smart's book, which has been adopted by the Medical Department of the United States Army for the instruction of hospital corps men, is well adapted to its purpose. The first part is devoted to hospitals and hospital duty and will prove useful not only to the hospital corps, but to every medical officer who serves the troops.

The section on elementary anatomy and physiology is well suited to its purpose.

The section devoted to the special needs of the hospital corps has to deal mainly with surgical and medical emergencies.

There is an excellent chapter on Elements of Cookery, which, though brief, is extremely instructive. The book is heartily to be commended.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD. By Richard C. Cabot, M.D. Freely Illustrated. Third Revised Edition.

New York: William Wood & Company, 1898.

With the extraordinary progress which has been made in the study of the blood as a tissue and of its relations with diseases manifesting themselves elsewhere, it has become necessary that the profession should be provided with a summary of our knowledge concerning hemology, and Dr. Cabot has provided us with a volume which possesses great value. As we have pointed out before, this book is emphatically the work of one who has studied the blood until he has obtained a large personal experience. Indeed, this very advantage almost amounts to a disadvantage in that the text is often such a bare description of fact, or of technique, that it is more difficult to read than if the author had used his pen with a freer hand. The fact, however, that three editions have been called for within a very short time not only proves the value of the book, but also that a need for its existence was felt by the profession. The principal additions to the present volume are an account of Professor Oliver's tintometer and hemoglobinometer, which we are told are the only two instruments of importance, and new matter has been introduced upon the primary anemias, upon leucemia, and upon Müller's blood dust, the newly discovered constituent of normal and abnormal blood. Various blood tests have also been described. In order to save space and in view of the impossibility of publishing a complete list of bibliographical references, this list has been ex-

punged, excepting where very important articles are referred to. This, it seems to us, is a valuable innovation, as it not only saves burdening the book, but tells us what the author considers to be the best literature on a given topic.

DIPHTHERIE UND DIPHTHERITISCHER CROUP. Von Dr. Adolph Baginsky. Mit 68 Abbildungen, davon 19 in Farbendruck.

Wien: Alfred Holder, 1898.

This volume is a part of a series having the curious German title of "A Handbook for Special Pathology and Therapy." It will be seen at once that as it is written by Professor Baginsky it comes from one of the highest authorities upon this very interesting disease, and like most volumes written by leading lights in the German medical world it is a splendid contribution to the literature of this subject. It is exhaustive and gives one practically all the information he can possibly desire concerning diphtheria and closely allied affections, both historically, etiologically, and pathologically. After an exhaustive discussion of the symptomatology of the disease, when it occurs alone or in connection with other maladies, and of the complications that may arise in its course, it discusses the diagnosis, the prognosis, and finally the therapy, of diphtheria. It is needless to say that the author discusses in a very able way the whole subject of serum-therapy. After doing this he proceeds to discuss the subject of treatment of stenosis of the respiratory passages due to the membrane.

The volume from one end to the other is increased in its value by the copious references and foot-notes which the author has supplied, and shows not only a complete knowledge of the literature of the subject, but an intimate personal acquaintance with its clinical aspects. There are so many physicians in America who can read German with ease that we doubt not that many of our readers will benefit themselves by obtaining this volume.

THE JOHNS HOPKINS HOSPITAL REPORTS. Report in Pathology. A Review of the Pathology of Superficial Burns. By C. R. Bardeen, M.D.

The Johns Hopkins Press, September, 1898.

This brochure of 179 pages deals with an exceedingly interesting subject about which much has been written by physicians and surgeons. Dr. Bardeen points out, however, that much of the literature is scattered and still more of it is based rather on hypothesis than upon the actual study of the pathology

of burns. After giving a historical summary of the literature and discussing the various theories as to the cause of death after burns, he goes on to tell us that he believes toxemia plays a very large part in the cause of death, and calls particular attention to the lesions which are found in the lymphatic system after more or less severe burns, these lesions not having received sufficient emphasis from previous writers. The research does not bear directly upon any methods which can be introduced for the purposes of treatment, but is a valuable summary of our knowledge of the subject and of the results reached by the author from the study of a number of cases of severe burns.

A MODERN TEXT-BOOK OF THE DISEASES OF CHILDREN. Edited by Louis Starr, M.D., assisted by Thompson S. Westcott, M.D. Second Edition, revised.

Philadelphia: W. B. Saunders, 1898.

This book is known far and wide throughout the United States as being a valuable contribution to pediatric literature, and has perhaps done more than almost any other volume to advance the study of the diseases of children amongst American practitioners—not that there were no first-rate books written by individuals upon this subject, as for example that of J. Lewis Smith, but because this made an opportunity by which the profession could obtain the views of a number of thoroughly competent men particularly qualified to write the articles assigned to them.

In the present edition a number of the articles have been revised. A section on orthopedics has been introduced, and about fifty new pages have been added to the volume. The volume is one of the best of its series and deserves all the confidence which it has received. It is sold by subscription, the cost being seven dollars in cloth.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. Edited by Thomas L. Stedman, M.D. In twenty volumes. Volume XV: Infectious Diseases.

Ten authors contribute the six hundred and forty pages which make up this issue, and they are gathered from far distant parts. The articles are by Dr. Frank S. Billings of Grafton, Mass., Boas of Berlin, Finkler of Bern, Gaston of Atlanta, Keirle of Baltimore, Kitasato of Tokyo, Leiceaga of Mexico, Nakagawa of Tokyo, and Ponfick of Breslau.

The first article on Influenza is by Ditmar Finkler, and this important subject is given no less than 250 pages, or about one-third of

the volume. As may be imagined the disease is exhaustively considered from almost every standpoint, and the facts the author desires to enunciate are emphasized by frequent quotations from the histories of patients. The article upon Typhus Fever by Leiceaga is about seventy pages in length, and is followed by a very interesting but exceedingly brief one upon the Plague by Kitasato and Nakagawa.

Billings' article is upon Glanders and Anthrax and is quite exhaustive, while Boas writes upon Foot and Mouth Disease, and Ponfick upon Actinomycosis. Keirle's article deals with Rabies quite exhaustively, and the concluding article of seventy pages upon Pyemia and Septicemia is by the Gastons, senior and junior.

We have previously spoken in terms of praise of this monumental work and have called attention to the fact that the articles and volumes must necessarily vary somewhat in value. We consider this particular volume an exceedingly creditable part of the system.

CLINICAL TEXT-BOOK OF MEDICAL DIAGNOSIS. By Oswald Vierordt. Authorized Translation with Annotations by Francis H. Stuart, A.M., M.D. Fourth American from the Fifth German Edition. Copiously Illustrated.

Philadelphia: W. B. Saunders, 1898.

This is one of the most successful books upon diagnosis which has been published, less than nine years having elapsed since the date of the first edition, and it has been received abroad even a little more enthusiastically than in this country, although the four editions which have followed each other rapidly on this side of the ocean have shown that the American physician is anxious to obtain all the aid that he can in this difficult portion of medical study. To those who are not familiar with the volume we may state that the first portion of it deals with what is known as "Diagnosis," or largely with those symptoms which we actually see, whereas in the greater portion of the book, which is devoted to special diagnosis, are given the details which are necessary for the more minute and satisfactory examination of patients. While the text of the book lacks sequence to some extent, it contains an immense amount of exceedingly useful information. Its illustrations are good in so far as they illustrate the text, although their mechanical production is not of the best. It is a volume which any advanced physician would be glad to have on his shelves. Its price is four dollars in cloth.

## Correspondence.

### LONDON LETTER.

BY RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P. LOND.

Medicine will have made a substantial advance in the day when leucocythemia is brought within the range of practical therapeutics. Every physician must be conscious of his inability not only to stay the progress of the disease, but also to mitigate the suffering that follows in its wake. Arsenic is not only useless, but in many cases actively harmful. We turn therefore with more than ordinary interest to Ewart's remarks on the treatment of two cases by inhalations of carbonic acid gas. The gas is generated in a Kipp's apparatus and freed from hydrochloric acid by passing it through a wash-bottle containing twenty-per-cent. solution of carbonate of potash. The amount of gas inhaled can be gauged with sufficient accuracy by watching the amount of bubbling in the wash-bottle. The inhalations are given for seven to ten minutes several times a day, and to guard against any respiratory complication oxygen is administered simultaneously through another tube. Ewart claims to have obtained very great improvement in two cases of leucocythemia by this method. It is necessary to add that the inhalations were combined with galvanism to the spleen for five minutes before and during the whole process. However, we do not seek to discount Ewart's results by reason of this super-added remedy, as in our experience galvanism has always and completely failed to produce any diminution in size of the leucocythemic spleen, and in more than one case has seemed to set up severe and abiding pain. We shall await with interest the results obtained by other physicians with this method.

Surgeon-Captain Foulkes has an ingenious suggestion for facilitating the extraction of the guinea-worm, and preventing its breakage. His method is at first the usual one of rolling the worm round a piece of paper. After a few inches have been extracted in this way, alcohol is injected into the remainder of the worm so as to harden it *in situ*; in about an hour the rest of the worm can be easily extracted. Foulkes found that in some cases the alcohol did not travel to the extreme limit of the worm, and a small portion would then be snapped off and remain in the wound. To prevent this contingency he added a small quantity of fuchsin

to the alcohol, so that the dye marked the distance to which the alcohol had traveled, and in this way all casualties were eliminated. Foulkes also noted that whereas the retention of a portion of the untreated worm usually induced local suppuration, if a portion of the alcoholized worm were left in the tissues it behaved like an aseptic ligature and was absorbed. Another advantage of the use of alcohol is that it leads to shrinking of the worm in the tissue sheath, which by reason of its tightness hinders entire extraction. The method commends itself as much by its simplicity as by its ingenuity.

As a subject for abstract academic discussion the question of the relative digestibility of white and brown bread might seem one of second-rate importance, but Lauder Brunton and Tunnicliffe, out of deference to the solicitude of the sick laity, discuss the subject seriously and usefully in the *St. Bartholomew's Hospital Reports*. Briefly, their conclusions may be summarized as follows: (1) White bread is, weight for weight, more nutritious than brown. Brown bread chemically should be more nutritious than white only in fats and mineral constituents; but in the process of digestion distinctly less of the nutritive materials actually get into the blood in the case of brown than of white bread. (2) In the case of people with irritable intestines, white bread is to be preferred to brown. Cellulose mechanically irritates the intestine; the larger the flakes of cellulose, the greater the irritant action. In irritable intestines it will even provoke diarrhea, and so interfere with the absorption of much nutritive material. (3) In the case of people with sluggish intestines, brown bread is preferable to white, as it tends to maintain regular peristaltic action, and insure regular evacuation of the bowels. (4) In cases where the proportion of mineral ingredients and especially of lime-salts in other articles of food or drink is insufficient, brown bread is preferable to white. It is possible that in the case of operatives living chiefly upon bread and tea, the preference for white bread which obtains in large towns may be responsible in part at least for the early decay of the teeth of those living on such a dietary. (5) An abundant supply of mineral constituents is especially required in pregnant and suckling women and in growing children, in order to supply material for the nutrition of the fetus, the constituents of the milk, and for the growth of the tissues, especially of the bones. In such cases, if mineral salts, espe-

cially those of calcium, are supplied by other foodstuffs, drinks, or medicines, brown bread is preferable to white. (6) If the dietary is insufficient in fat, or if the patient is unable readily to digest fat in other forms, brown bread may possibly be preferable to white.

Martin and Cherry recently communicated to the Royal Society some experiments on the nature of the antagonism between toxins and antitoxins, which are of first-rate importance in these days of antitoxin therapeutics. Their observations directly contradict those of Calmette and his school, who maintain that antitoxins act in some indirect way through the medium of the cells of the body, and confirm the view enunciated by Kanthack, Behring and others that the antagonism is of a directly chemical character such as the neutralization of an acid by an alkali. Calmette's experiments were made with cobra toxin and its antitoxin. The cobra toxin is not attenuated by heating its solutions to 68° C. for ten minutes, while the antitoxin is completely destroyed. Calmette showed that mixtures of toxin and antitoxin were innocuous to rabbits, but that if after ten minutes' contact the mixture was heated to 68° for ten minutes, it at once became lethal. From these experiments Calmette denied the direct chemical character of the reaction between the toxin and antitoxin. On the other hand, Kanthack has shown that the property possessed by cobra toxin of preventing the coagulation of blood in the test-tube is lost if the toxin be mixed with Calmette's antivenomous serum. Martin and Cherry's experiments show that Calmette's inference is quite untrustworthy, because he has made no adequate allowance for the factors of time and temperature in the possible chemical interaction of toxins and antitoxins. Their experiments were made with the diphtheria toxin, and also with one of the constituents of the poison of an Australian snake, which is apparently identical with the cobra toxin, and is more or less decidedly counteracted by Calmette's antivenomous serum. Their first experiments were designed to show by a direct method that the action of antitoxins upon toxins was chemical, not physiological; the basis of the experiment was the known fact that substances of different molecular size, when in combined solution, may be separated by filtration. The filtration was effected through a film of gelatin in the wall of a Pasteur-Chamberland filter under a pressure of fifty atmospheres. A standardized solution of diphtheria toxin was thus

filtered, and the filtrate found to contain the toxin, though diminished in toxicity. Brodie showed in his Arris and Gale Lectures of last year that the antitoxin does not pass through such a filter; consequently the toxin and antitoxin of diphtheria may be readily separated from each other, provided there have been no chemical reaction between the two beforehand. Martin and Cherry allowed the solution of the combined toxin and antitoxin to remain for two hours at 30° C., and then submitted it to filtration. The result was that the filtrate contained no toxin, and was quite harmless on injection. The only obvious conclusion must needs be that the toxin had undergone some change of molecular size, and this can hardly have been caused by anything else than chemical interaction of the toxin and antitoxin.

Martin and Cherry have also repeated Calmette's experiments with the cobra toxin, and have shown that by varying the factors of time and temperature results can be obtained in direct contradiction to those obtained by Calmette. On the whole, therefore, Calmette's experiments rather confirm the view of some direct chemical interaction—the very conclusion they were designed to confute. To this end nearly all the most recent observations converge. In the spring of this year some interesting observations by Stephens and Meyer in Professor Kanthack's laboratory at Cambridge were communicated to the Pathological Society of London. Cobra toxin was shown to exercise a hemolytic action on blood in the test-tube, but after admixture with a given proportion of antivenomous serum, the hemolytic action of the solution was lost. It is difficult to explain this change of toxicity on any other than decidedly chemical grounds.

In this country Dr. O'Connor, of Lowestoft, has taken advantage of the ready passage of antitoxin serum through animal membranes to administer the antidiphtheritic serum to his patients per rectum. He claims to have got strikingly good results by this method, and with a marked absence of complications. Certainly the rectum is a more convenient receptacle for the bulky doses that must be administered than the subcutaneous tissues. An advantage which O'Connor claims for this method of administration is that it renders more manageable the viscid solutions obtained by dissolving the solid sera. The dosage of the antidiphtheritic serum, when administered by rectum, should be guided by the same rules as apply

to its hypodermic use, as absorption by the rectal mucous membrane appears to be both rapid and complete. We trust that Dr. O'Connor's recommendation with regard to antitoxic sera may in the near future be found applicable to the many multiple nauseating drugs of the Pharmacopœia. Dr. O'Connor's praises would be told by the mouths of babes and sucklings.

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#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

In our last letter we spoke of the Congress of Tuberculosis held in Paris from the 27th of July to the 3d of August, and, as we indicated, the principal subjects discussed were the prophylaxis of consumption and its treatment in sanatoria.

So far a few well regulated sanatoria have been constructed in France, but the latter have always been established for rich people or people of means, and hardly anything has been done for the poor. It is, of course, useless to try to stamp out tuberculosis unless all classes of society are treated for it, and so the founding of asylums for tuberculous patients of the poorer classes was naturally discussed at length.

Dr. Legendre, physician of the Paris hospitals, discussed the advisability of erecting large sanatoria. He insisted on the following points: It would be better to have small sanatoria situated near the large cities, as the expense of traveling, both for the patients and their families, should be taken into account. The question of climate is also to be considered, and various sanatoria should furnish different sorts of climate according to the season of the year. Lastly, according to his mind, the maximum number of beds should be about twenty, four to twenty being about the right number.

Dr. P. Koninojy described the sanatoria founded at Grabowsee and Ruppertshain. These asylums are to serve as models for the thirty similar establishments which are to be erected in various parts of Germany by the Society of the Red Cross. The sanatorium of Grabowsee is situated in the middle of a forest, which surrounds the lake bearing the same name, and is about three-quarters of an hour's drive from the railway to Berlin. There are three large buildings and thirteen smaller ones, each of which is divided into three compartments. There are four beds in the two end compartments, and the mid-

dle one is used as a sort of sitting-room. All the windows in the larger buildings open to the south; on the north side there is a plain wall. There is a window left open in each room at all times of the day and night. Each patient is supposed to clean out his spittoon and wash it with corrosive sublimate. The treatment consists in hydrotherapy, frictions, and rest in the open air. Patients are weighed and examined every two weeks. Their expectoration is examined every three weeks. The price for paying patients is three marks, the cost for each bed being 2 marks 85 pfennigs.

Dr. Schrötter, of Vienna, had a few words to say on the treatment of consumption. He described the spittoons used in Austria, which are made of compressed paper, impregnated with paraffin. They are quite watertight, burn very readily, and cost about half a cent apiece.

Dr. Landouzy presented a spittoon made by Collin, the great instrument-maker in Paris, on plans furnished by R. Simon, of Paris. This pocket spittoon is made of black glass and metal, about the size of a large whistle, and its appearance does not produce a disagreeable impression. It is furnished with a cover that fastens down hermetically, but has no spring, and is supplied instead with a piece of rubber, which serves to make the cover spring back. There is an opening below closed by a cap that is screwed on, and this opening serves to empty the spittoon when it is full. Another point in favor of this receiver is that the orifice is obliquely inclined so as to allow the patient to expectorate readily.

Dr. Churquet, of Cannes, spoke after Dr. Landouzy, and said that one should insist on the cover being so arranged that, when the latter is opened, no part of the expectoration should be thrown off.

What is of as much importance as the spittoon is the way in which it is sterilized, and the following are the means that obtain in France and elsewhere: One may use the preparation recommended by Dr. Miquel, which is a 2:1000 solution of corrosive sublimate with 20 grammes of chloride of sodium, or a 5:100 solution of carbolic acid, or a 5:100 solution of formaldehyde. After all, the best process is that used at the Boucicaut Hospital. The spittoon containing the expectoration is sterilized under pressure and then cleaned out and washed. In the sanatoria of Falkenstein and Hohenhormef, the expectoration is thrown into the water-closet pit; the spittoon is then sterilized by being

put into boiling water. At Ruppertshain and Alland the expectoration is absorbed by some peat and the latter burnt. As a general rule the expectoration should not be thrown into the sewers until it has been sterilized.

All these precautions, of course, cost a good deal of trouble, but in some places they are carried out with the greatest regularity. At Leysin, for instance, the patient puts his spittoon outside his door at night on going to bed; he gets it back the next day in perfect condition. For the night and in his room he has a special spittoon.

Dr. Landouzy spoke again at the end of the sitting on the necessity of providing public spittoons in all places such as stations, halls, etc. He trusted that at the 1900 exhibition special attention would be paid to this important subject, and that just as various means of warding against fire are established, a like effort would be made by the committee for the exhibition to inculcate into the masses some idea of the importance of prophylaxis by means of charts, papers, diagrams, and other statistical methods.

Dr. Bouchard, professor at the Faculty of Medicine, and Dr. Claude, his house physician, called the attention of the members of the congress to the use of Roentgen rays to diagnose tuberculosis, and they recommended the apparatus of Guilleminot, in which the radioscope is fixed on the chest of the patient by means of a belt in such a way that the radioscopic effect is only produced during inspiration.

By using this means of diagnosis, Bouchard, Rendu and Maragliano have been able to discover tuberculosis in patients who have none of the ordinary symptoms. These authors indicated the following means of recognizing consumption: One should always examine the natural condition of the lung in a healthy subject. When there are lesions, instead of there being uniform transparency, there exist small granulations, sometimes a sort of veil or foggy appearance at the summit of the affected lung. Another important modification is the greater or less clearness of the clavicle, which if rather indistinct indicates a modification in the permeability of the lung. Later on the obscurity increases, and it is absolutely impossible to perceive the outline of this bone. The diaphragm is also affected. It does not ascend as far as in a normal condition. Such are the two principal symptoms at the beginning of consumption. When the case is more advanced, and the lung destroyed in part, it may prove of some



interest to recognize to what extent the lung may be affected. In such cases the Roentgen rays indicate a cavity by a sort of light spot surrounded by a black circle. One may follow the repletion or depletion of the cavity. Various membranes, adhesions, diaphragmatic pleurisy, pleural symphysis, can be discovered, thanks to the retraction of the lung. Interlobular pleurisy may be distinguished from an abscess of the lung, as the latter is characterized by a well defined opacity surrounded by a clear zone. In emphysema the symptoms are very apparent; there is a luminous tendency which is quite perceptible. The ribs and the vertebræ are less sharply defined, perhaps on account of their chemical composition being slightly modified, according to some American authors, there being more salts of magnesium than formerly. An irregular appearance of the lung tissue is readily perceived, due perhaps to bronchial sclerosis. The diaphragm is drawn down. The vertical dimension of the thorax is increased. In hydatid cysts there is often a peculiar appearance due to an opaque zone surrounded by a spherical membrane. In short, the  $x$ -rays are an excellent means of controlling the diagnosis and revealing consumption in its initiatory stages.

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*BERLIN LETTER.*

By JAMES J. WALSH, PH.D., M.D.

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During the university vacations I have been in Munich. The University at Munich was of course closed, so I found subjects for study in the methods of two of the best known and most successful "irregular" practitioners in Europe—Hessing at Göggingen, in Bavaria, the instrument maker, and Pastor Kneipp, "the water-curer" at Wörishofen. Pastor Kneipp has been dead for over a year now, but Kneipp institutes exist everywhere, and his disciples have increased since his death.

Here was an example of a simple country clergyman who, without any scientific knowledge of diseases or their cure, has won for himself an immense following not alone among the uncultured, but among some of the best educated in Europe. Wealth flowed into his church treasury unsought and unasked. The little town of Wörishofen doubled, then tripled, in size in order to accommodate the visitors who came to take the cure under his direction, and the number of such visitors each year ran up into the tens of thousands.

Thousands who had consulted regular physicians in Europe without relief for their ailments went to Wörishofen and came away cured. The secret of his success was cold water and unbounded confidence in his own ability by means of it to cure all the ills that flesh is heir to. One very patent consequence of his success has been a revival of hydrotherapy in professional hands. Everywhere in Europe this is true, but especially in Germany. In the new Charité in Berlin, for which some \$4,000,000 are to be spent in the next five years, a special feature is to be a hydrotherapeutic institute. Most of the German universities now devote special attention to hydrotherapy. It is true in a way that universities have been forced into giving attention to the subject by popular sentiment. In most of the legislatures of the German States, laws have at least been proposed establishing special institutes for hydrotherapy or proposing to institute special professorships in the subject.

Much that Pastor Kneipp has done is founded on an exaggerated idea of the curative effect of cold water; all of it is tinged by a disregard for the permanency of organic lesions, as sublime as anything that tinged medical practise before Rokitansky and the Vienna school had done their autopsies. Pastor Kneipp scarcely pretended to know anything of pathology in the scientific sense of the word. For him the old humoral pathology that lends itself so beautifully to theorizing on alterative and derivative effects of remedies was all-sufficient. No affection was hopeless for him, and only death closed the scene of therapeutic efforts, whose aim was not merely alleviation but cure. His success at times even in cases where the best medical skill had been unavailing was very striking. In the milder affections where some slight functional trouble, exaggerated and inveterated by inherited or acquired neurotic conditions, makes them almost the despair of the ordinary practitioner, the suggestive effect of his absolute assurance of cure, his dietary regulations and hydrotherapy really worked wonders. His career was a striking rebuke for nihilistic therapists, and it has been one element in the reaction to physical therapeutic methods that is now in progress all over Germany.

Another irregular whose success has served to illustrate the fact that medical practise is under present circumstances much more an art than a science is, as I have said, Hessing, the instrument maker. He has just been

decorated by the Grand Duke of Luxemburg for the construction of an apparatus for him that enables him to walk, though he seemed practically condemned to bedriddenness for the rest of his life, from the failure to unite of an intracapsular fracture at the hip. Within the year the universities of Bavaria have had to exert their influence to keep the Bavarian Legislature from conferring upon him the right to teach orthopedics as a special branch, with the privilege of giving his students the right to practise it.

It is not only outside the profession that Hessing's merits are acknowledged. I have within the last few months heard two German university professors of surgery commend his work. One of them, the author of a very well known text-book of surgery, that has gone through some six editions, said that he always felt best satisfied, in cases where orthopedic appliances were needed, when he could commend his patients to Hessing. For large tabetic effusion into joints, for instance, he found it after repeated trial much more advisable to have an apparatus carefully constructed by this master hand than to puncture the joint and keep the patient in bed. But Hessing has learned his own value, and does not construct an apparatus now without due compensation, and besides, patients must go to his institute at Göggingen in Bavaria, where for weeks their cases are carefully studied, and then apparatus, after the preparation of models and repeated trials, specially constructed for them.

For this is the secret of Hessing's success—his special study of the application of mechanical principles to each individual case. He is only a cabinetmaker, who first constructed prothetic and orthopedic apparatus for friends and neighbors in his little Bavarian village home, but whose reputation finally brought patients from all over Europe to him. There is no mystery in Hessing's work. It is merely the application of the finest principles of mechanical art to the difficult problems of orthopedics, each case being made the subject of special study. He has taught instrument makers but little that was not in use before, though that little is important. He it was who substituted for leather bands in the application of rigid apparatus to the leg, the use of molded, perforated splints accurately adapted to the parts. He thus secures a large surface of contact between flesh and apparatus and lessens friction, pressure, and discomfort. Some of his methods of applying apparatus

to joints involve the use of new principles. At the hip he has known how to avail himself of the large surfaces furnished by the iliac bones as high up as the iliac crests, to apply apparatus so difficult of adaptation here that fit well, are firmly held in place, and yet do not cause pressure and friction.

So much for the "art of healing" as practised by two of the irregulars. As they have carried me into the subject of physical therapeutic methods I shall continue in the same strain. In mechano-therapy Dr. Zander's (of Sweden) apparatus are being used everywhere in Germany. At first these ingenious apparatus, by which the limbs and trunks are made to execute a series of definite movements for the accomplishment of certain purposes, especially the overcoming of ankylosis and pseudo-ankylosis in joints, were to be found only at the watering-places, at Wiesbaden, Carlsbad, and Baden-Baden. Now all the large cities have them, and most of the hospitals have at least a certain number of the apparatus. The hospital at Moabit, for instance, one of Berlin's large city hospitals, is thoroughly equipped with apparatus for the movement therapy of stiff joints. The ingenious construction of these contrivances on thoroughly practical mechanical principles, and the application of the most varied range of movements by special construction, have given excellent results to this method of treatment, and it is now one of the most effective therapeutic aids the surgeon has. For the physician they constitute a most valuable curative measure in such conditions as the stiffness from chronic rheumatism and atrophies from disuse.

Great hopes were founded a year ago on the possible applications of the Roentgen rays to therapeutics. These have been disappointed, though there has been no lack of ardent workers in the field. While at Marburg some months ago I found that Professor Behring had a magnificent set of apparatus for work with the Roentgen rays. He was very frank, however, in the expression of his opinion that as far as regards bacterial diseases he did not think that the  $x$ -rays would ever be found of therapeutic value. Just as in the use of antiseptics, the strength of the reagent required to kill the bacteria would also kill the tissues in which they were situated, so that colonies of microbes situated below the surface were safe from attack by the new rays.

Dr. Rieder, of Munich, announced a paper for the German Medical Congress at Wies-

baden in April, in which he proposed to demonstrate in plate cultures how much exposure of the plates to the action of the  $x$ -rays inhibited bacterial growth in the exposed parts, though growth continued normally in other parts. He was prevented for some reason from presenting his paper at the Congress, so that there are only his journal articles to refer to. Just before the end of the semester he was made Extraordinary Professor at the University of Munich, so that a certain stamp of university approval is put on his work. Besides the bacterial inhibition in cultures he has seen the  $x$ -rays do good in the parasitic skin diseases, notably those originating from fungi, and in chronic skin disease, as psoriasis and lupus.

Others claim to have had good effects from it in lupus, too, but Professor Lesser, the professor of dermatology at the University of Berlin, in discussing the subject not long ago, said that not much was to be hoped for from it. The reaction to the  $x$ -rays does not occur in all cases, but is an idiosyncrasy of the individual, not always existent even in the same person nor to the same degree. This idiosyncrasy cannot be surely predicated of any given patient. It is extremely difficult, then, to determine how long an exposure will be required to produce a given effect, or whether an effect will be produced at all. For lupus what is attracting most attention just now is Professor Finzen's (of Norway) method with certain actinic light rays. A good deal of encouraging experiment has been done in this line.

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*THE TRIENNIAL INTERNATIONAL CONGRESS OF PHYSIOLOGISTS AT CAMBRIDGE IN 1898.*

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BY HORATIO C. WOOD, JR., M.D.,  
Philadelphia.

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The Fourth International Congress of Physiologists, which met in Cambridge August 23 and continued its sessions for the following three days, was in every way a great success. There was a very large number of papers presented—in fact more than there was time for the Congress to hear—and most of them were of a very high grade, while some were of extraordinary interest, not only for the physiologist but also for the clinician; indeed, several of the latter found it worth their while to attend the Congress as regularly inscribed members. Among these might be mentioned the famous surgeon Professor

Kocher, Professor Sahli of Berne, who is rapidly taking a place among the foremost diagnosticians of Europe, Professor Lauder Brunton of London, and many others of nearly equal repute. Most of the time at the disposal of the meeting was employed in seeing demonstrations and hearing papers. The Congress, however, found time to attend the ceremony of conferring the honorary degree of Doctor of Sciences on several of its members by the University of Cambridge. One of those to receive this great honor was Professor Bowditch, of Harvard University.

The Congress was opened on the 23d of August at ten o'clock by its President, Professor Foster. After alluding to the difficulties under which English physiologists labored on account of the laws regulating vivisection, and requesting the foreign members to have respect for those laws, Professor Foster declared the Congress opened and called on Professor Marey to read his paper. Professor Marey, after showing the necessity of a unification of measurements and methods employed by physiologists, moved the appointment of an international committee for the regulation of the same. Dr. Demoor, of Brussels, followed with a very interesting and important paper on "The Histological Changes Produced in the Cerebral Neurons by Excitation." Dr. Demoor showed lantern slides of histological preparations (by the method of Golgi), illustrating the ganglionic cells of the cerebral cortex. In an animal killed suddenly (by decapitation) while in a normal state the cortical neuron is characterized by the presence of numerous processes, which are furnished with appendices projecting at right angles. After morphine poisoning these appendices, and to a large extent also the processes themselves, disappear. This moniliform state, however, is not peculiar to morphine narcosis, but occurs equally as a result of anesthetization by ether or chloroform. A similar condition of affairs is found after psychical excitation: thus a guinea-pig which was chased around the laboratory until thoroughly frightened presented the moniliform appearance of the neuron well marked. The author regards this simplification of the neuron processes as a sort of contraction of the nervous protoplasm of the cerebral cells due to an excitation of the same.

Dr. Asher, of Berne, read a paper of considerable clinical interest on "The Theory of Lymph Formation." He said the lymph could no longer be regarded as the merely mechanically exuded blood-plasma, nor did

Heidenhain's theory, which looks on it as a secretion of the walls of capillary blood-vessels, seem to him tenable. He himself believes the lymph to be the carrier of poisonous products of the body metabolism, which are transformed by the lymph glands into substances without toxic properties. In support of this theory he has shown, firstly, that the lymph has a distinctly poisonous action if injected into the circulation; secondly, that those substances which increase tissue work, bringing about a larger destruction of bodily proteids, as, for example, drugs increasing the flow of bile, also cause an increase in the rate of flow of lymph from the liver. Salt solution he claims acts as a lymphagogue, not by virtue of any physical property, but because it increases the work of the liver. In the third place Dr. Asher has found that the lymphatic glands undergo a demonstrable histological change, the result of their activity. If one stimulates, through the chorda tympani nerve, the salivary gland of one side, the increased flow of saliva—in other words, the increased metabolism—is accompanied by an increase in the rate of flow in the corresponding lymph channels. As a result of this he has been able to find changes in the submaxillary lymph-glands of the same side, visible both to the naked eye and to the microscope.

In connection with Dr. Asher's paper might be mentioned that of Dr. Biedl, of Vienna, which, although read at another time, had a bearing on the subject. The paper was entitled "A New Form of Experimental Diabetes." Dr. Biedl has found that ligating or cutting the thoracic lymph-duct in dogs causes the appearance of sugar in the urine. He regards this fact of importance, because the glycosuria was not a merely transient one and was therefore a true clinical diabetes. He admitted, however, that in the course of a month or two the sugar disappeared from the urine owing to the formation, as he found by post-mortem examination, of collateral lymph-ducts. The intravenous injection of lymph will set aside the symptoms temporarily. Contrary to the statements of Gaglio, he has found that ligation of the thoracic duct in cases of pancreatic diabetes only increases the percentage of sugar in the urine.

"The Demonstration of the Union of Nerve-fibers with the Cells of the Sympathetic Cervical Ganglion," by Dr. Langley, of Cambridge, proved to be one of the sensations of the Congress. Two months previously the sympathetic nerve of a cat had been

divided just above the cervical ganglion, and a large piece removed to prevent reunion. The pneumogastric was divided in the same way and its central end joined to the peripheral end of the sympathetic. Dr. Langley reasoned if these nerves had grown together, then stimulation of the vagus ought to give the same symptoms that stimulation of the sympathetic would under ordinary conditions. This he found to be the case; if the electrodes were applied to the vagus above its seat of junction electrical stimulation caused separation of the eyelids, dilatation of the pupil, contraction of the vessels of the ear, and the other well known symptoms of sympathetic stimulation. From this experiment Dr. Langley concluded that all the spinal nerves are essentially the same, and, for example, a vaso-dilator can be converted into a vaso-constrictor, and *vice versa*.

Drs. Mott and Halliburton presented a paper on "The Influence of Choline and Allied Substances on the Blood-pressure." The chief interest of their paper lay in the fact that the authors have shown that the cerebral fluid in cases of brain atrophy contains choline, which substance they believe to be the cause of the circulatory disturbance which so often occurs in the course of cerebral degeneration. They have found that the cerebro-spinal fluid from normal individuals when injected into the circulation in moderate doses has no effect; that, on the contrary, from cases of brain disease has a very marked effect, which is a distinct although temporary fall of pressure. The authors achieved precisely the same result from the injection of choline. They have also demonstrated the latter substance chemically in these pathological fluids. As they have found the blood of these patients to be toxic and in the same direction, it is a perfectly plausible supposition that the choline liberated by the breaking down of the nervous tissue of the brain is absorbed into the circulation, causing the peculiar vaso-motor symptoms associated with these troubles.

Dr. Atwater, of Middletown, Conn., had a paper on "Alcohol as a Foodstuff." His experiments, four in number, were performed in the following manner: A man whose body had previously been brought into a state of metabolic equilibrium was placed in a large calorimeter of especial construction; he was fed on diet just sufficient to provide for the necessities of his body, the excreta and air being chemically examined, and the energy given off as heat measured in calories. In

the second series of experiments a small portion of the carbohydrates of his diet was substituted by an amount of alcohol representing the same quantity of potential energy. The author found that the alcohol so ingested was practically entirely oxidized, that the carbohydrate equilibrium was unaltered, but that the alcohol seemed to exercise a slight protective influence over the nitrogenous destruction. These results remained true both for the resting and the working man. The author concluded that alcohol in small quantities was completely oxidized in the body, and that the organism was able to use the carbohydrate presented in this form for the purposes of nutrition—in short, that alcohol was a true foodstuff.

An interesting discussion followed this paper, Professor Meyer, of Marburg, objecting that although the facts of Dr. Atwater were true, nevertheless alcohol was not a true foodstuff, because this extra carbohydrate was not shown to be necessary or useful to the body. To this Professor Bowditch replied that the same was true of bread: we could subsist very well without bread if we were furnished sufficient carbohydrate in another equally assimilable form. Dr. Atwater added that this much was certain: with a diet otherwise insufficient for the work performed, the alcohol prevented the loss of bodily weight—the organism was not driven to feed on itself for a source of the expended energy.

Besides the papers of which abstracts have just been given, there were read such a mass that their mere titles would fill a page. They were, however, mostly of more interest to the physiologist than to the practitioner.

On Friday, August 26, at the general meeting, after attending to some routine business and adopting resolutions of thanks to the various officers whose efforts had made the Congress the success it was, it was decided to hold the next meeting in Turin, Italy, in September, 1901.

President Foster then declared the Fourth International Congress of Physiologists closed.

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*THE SANITARY CONDITION OBTAINING  
TO THE ENCAMPMENTS AT TAMPA,  
FERNANDINA, AND  
HUNTSVILLE.*

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BY EDWARD MARTIN, M.D.,  
Major and Brigade Surgeon, U. S. V.

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At Tampa the troops which had been hurried from the North were encamped, in

the main, on the most favorable ground of that region. This, at best, represented a sandy soil overgrown with the thick palmetto roots, scantily shaded with pine, and with water from four to six feet from the surface. In many camps, notably those placed near the river or bay, water was found within one or two feet of the surface, even before the rains began. In the majority of the camps, after a few days of rain, the water in the sinks lay even with the surface, and during the downpour the fecal and waste matter of the camp, which had been previously buried, was washed up and more or less widely spread over the ground. The region occupied by the troops at Port Tampa was finally converted into a large foul marsh, the shallow, fresh-water ponds of which bred millions of mosquitoes, while the diffusion of excrementitious matter encouraged the multiplication of flies to such an extent that every article of food exposed for a moment became black with them. The rains usually came in the afternoon, working from the east against a brisk westerly wind. They lasted from a few minutes to several hours—sometimes one or two days—and to the Northern men were astonishingly violent, an enormous amount of water falling in a short time.

The water supplied to the troops was piped to their camps. It was of surface origin, was strongly chalybeate, and was that used by the citizens of Tampa and Port Tampa. There had been very little typhoid in these places, and that which occurred was attributed by the local doctors to persistence in the use of water from polluted wells. There were many wells and springs from which water much better to the sight and taste than that piped to the troops could be had. There were a large number of fruit and soft drink booths; the saloons were multiple and accessible, and some of the regiments had their own canteens, selling from them to their own monetary profit—mainly beer. The nights were always cool, and through the day, except in the early morning, there was a pleasant breeze stirring, so that out of the sun the hot days were bearable.

Orders were issued to the effect that troops should boil all the water they used for drinking purposes, but since the vessels required for the observance of the orders were not issued, it was obeyed only exceptionally. A company of a hundred men will drink in a hot climate at least thirty gallons a day. They will not drink hot or lukewarm water.

They object on general principles to the flatness of boiled water. They must have thoroughly drilled and disciplined into them the danger incident to drinking water from any and every source. To make the working of an order to drink only boiled water practicable, each company would require a large boiler and two clean barrels. In my tour of the various camps I found very few in which the preparation of the water was consistently followed out in all the companies.

As might have been expected, following the first outbreak of diarrhea and dysentery, occurring a few days after the troops reached Tampa, there developed an epidemic of typhoid fever wide-spread and severe, but singularly enough sparing in the main the camps of the Third Brigade, which were placed on probably the lowest and most water-soaked ground to be found about Tampa. It is worthy of note, however, that in these camps much greater care was practised in regard to the sterilizing of the water than in most of the others. The typhoid which developed was somewhat atypical—diarrhea, nosebleed, cough and agonizing headache were common; tympany and marked splenic enlargement were often noted; high temperature, intense backache and albuminuria were characteristic of the more severe cases; the pulse was often slow, sometimes extraordinarily so.

Situated as we were, at a port into which it was extremely probable yellow fever would be brought, and keeping constantly alert for the first sign of the disease, which once started among our debilitated soldiers would have been attended by a heavy mortality, it readily can be seen that these cases of typhoid, sometimes sudden in onset, attended by high fever ( $105^{\circ}$ ), slow pulse (40 to 80), great epigastric tenderness, pain in the back, and albuminuria, presented at times a question for differential diagnosis exceedingly difficult to solve, even for the experts in the disease, who differed, however, in but one case which was positively declared by one of them to be yellow fever. An autopsy showed beyond question that the patient was suffering from typhoid.

The fatal cases, and there were many, often perished from suppression of urine, an acute nephritis commonly complicating the fever. Some passed through the fever without taking to bed, and died quite suddenly of heart failure. In a few cases death was due to perforation.

The importance of keeping patients suf-

fering from typhoid quiet was well shown by the appalling mortality incident to the attempt to remove by train to the Northern hospitals those most seriously ill. The Government hospital trains were, however, simply ordinary Pullman sleepers, and the patients were in some cases allowed to walk to the end of the car when need required.

Frank malaria, characterized by regularly recurring chill, fever, and sweat, was rare. There was, however, a very common affection characterized by sudden onset, usually while the soldier was in the sun, rigors, sharp headache, high temperature ( $103^{\circ}$  to  $105^{\circ}$ ), backache, loss of appetite, lasting two to five days with morning remission, subsiding rather suddenly and apparently quite independent of treatment, though quinine in moderate doses seemed sometimes serviceable. In this affection, as in typhoid fever and the chronic camp diarrhea, medicine was of distinctly minor importance; diet and skilled nursing, neither always obtainable, being much more potent factors in the accomplishment of cure.

After weeks of urgent representation on the part of the medical department, and after more than twenty-five per cent. of the pick of the Tampa troops had become disabled by the diseases incident to their environment, the men, or at least a great part of them, were moved to Fernandina, an island on the east coast of Florida surrounded by many miles of tide swamp and infested with mosquitoes. The camp was pitched on a series of hills, evidently old sand dunes; the drainage was good; pits could be dug to any practicable depth without striking water—the drinking-water came from a depth of over 700 feet, and was strongly impregnated with sulphur and iron, but since its universal use by the townspeople typhoid fever had disappeared from their midst.

Before the movement it was stated that malarial troubles were not likely to be benefited, and that the troops should be taken North, or at least out of the malarial belt. The Fernandina camp was, however, a great improvement on that of Tampa; there were very few flies, the ground was devoid of odor and dried quickly after rain, the sea-breeze blew nearly all day, and the water which was piped to the camp was wholesome. There were, however, a number of surface wells and springs. With one or two hundred men wandering about the country in the early stage of typhoid, it is readily seen how quickly these water-supplies would become

contaminated; that they did so and that they spread the disease is shown by the fact that more than three weeks after the troops arrived in Fernandina new cases of typhoid were developing with alarming frequency. Moreover, as predicted, the malarial affections became rapidly more pronounced.

It was, perhaps, because of the progressive deterioration in the condition of the troops that late in August the movement to Huntsville was instituted. The valley in which this town is situated is wide and fertile, the mountain air is fresh and invigorating, the surrounding country one of great beauty, and providing a continuance in the auto-inoculation process is guarded against by keeping the soldier from drinking the water in wells and springs, and by filtering or boiling all the water that they drink, two or three weeks in this camp would go far toward repairing the debilitation incident to a two months' stay in Florida.

#### APOCYNUM CANNABINUM.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: It seems that Dr. Dabney, of New Orleans, and his critics are having some trouble in regard to whom is entitled the priority in the introduction of *Apocynum cannabinum* in the treatment of dropsical affections. One who was considered inspired tells us that "there is nothing new under the sun," and this controversy happily illustrates the truth of that adage.

Without claiming any proprietary interest either in the name or use of *Apocynum cannabinum*, I will state that, at the suggestion of a brother practitioner, I began the use of it in the year 1881, seventeen years ago, and have been using it pretty regularly ever since; but I never imagined I was using anything but an old, valuable, but unfortunately almost obsolete, remedy. In Geo. B. Wood's Practice of Medicine, edition of 1858, page 381, it is mentioned as a remedy for dropsy. In Pareira's Materia Medica, edition 1866, page 552, we find the following in regard to it: "*Apocynum cannabinum* is powerfully emetic and cathartic, sometimes diuretic, and, like other emetic substances, promotes diaphoresis and expectoration. It produces much nausea, diminishes the frequency of the pulse, and appears to induce drowsiness independently of the exhaustion consequent upon the vomiting. The disease in which it has been found most useful is dropsy. In ascites it sometimes causes the

removal of the fluid through its hydragogue cathartic action."

Now Dr. Wood's testimony was given forty years ago, and Dr. Pareira's thirty years ago. From this we can see that it certainly does not belong to the class of new remedies, and no doubt many a poor water-logged sufferer was dosed with this nauseous potion before the present generation of medicos were wearing swaddling clothes.

My individual experience with *Apocynum* has been considerable, and on the whole very satisfactory. Many times have I administered it to patients who had albuminuria, dropsy, dyspnea, and all the clinical features of what we in general terms call Bright's disease, and I have many times seen all these symptoms change and a complete and permanent recovery follow. Of course I am not to be understood as claiming it to be a specific for chronic nephritis in all its forms. Many times it has failed, but it has frequently succeeded when the clinical diagnosis of chronic Bright's disease was justified before using the remedy.

I cannot recommend *Apocynum* in ascites as a substitute for tapping as confidently as does Dr. Dabney. Only last year I gave it continuously to an ascitic patient whose dropsy was produced by a cirrhotic liver, but with no good result. His dropsy continued in spite of the remedy being pushed to the point of tolerance, and he had to be tapped every twenty days until his death.

It is an old and certainly a very valuable remedy, and these gentlemen have done a valuable service in bringing it prominently before the profession, even though neither can justly claim priority in its discovery and use.

J. W. MEEK, M.D.

CAMDEN, ARKANSAS.

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To the Editor of the THERAPEUTIC GAZETTE.

SIR: I have enjoyed your various communications upon *Apocynum*—enjoyed them, because it is amusing to see people making "discoveries" of what hundreds of people have long known. I have used *Apocynum* since 1877 in the treatment of general dropsy, and many times the effects have been exceedingly beneficial.

The two species of *Apocynum* of our country—*A. cannabinum* and *A. androsæmifolium*—differ considerably in therapeutical action. The *A. androsæmifolium* is a cathartic and emetic, and also acts upon the gall-ducts to aid the expulsion of bile. In very small doses it is a tonic to the hepatic function; in larger

doses it is a strong cathartic. The *Apocynum cannabinum* has a different action, seeming to be a tonic upon the absorbent system, as well as a stimulant to the heart's action. It is in this direction that it acts upon dropsy. In order to get the nicer effects upon general dropsy it should be given in doses too small to physic, and when there appears a tendency to loose bowels the medicine should be withdrawn for a few days, but the bowels must not be checked by opiates.

There is another point of view in this matter. The old, nasty fluid extracts of the general druggist cannot be depended upon to produce a nice action of the drug. Those who use them must give doses that poison their patients, and thus defeat their very intentions. I use a good mother tincture of the *Apocynum cannabinum*; for an adult my dose is about one drop of that tincture every three hours while awake. Should the heart show marked irregularity, with intermittent pulse, I add one-fourth drop tincture of the recent juice of digitalis. If there is marked weakness without febrile reaction, equally minute doses of Fowler's solution and nuxvomica, say half drop of each, are given four times a day as a tonic. In case the legs are greatly swollen I generally add to the Apocynum some triturated chloride of potash, as follows:

℞ Apocyni cannabini (saturated tincture of recent root), 3 j;

Trit. kali chloridi (6th trituration), 3 j;

Aquæ destillat., 3 iv.

M. Sig.: f 3 j every three hours.

In some cases it is even well to give a saline cathartic to begin with.

With this treatment, which may be kept up for months, if the diet is regulated, I have relieved a good many aged people with diseased hearts, albuminous urine, and dropsical legs. Three years ago I took an old lady of seventy-four, who had not been able to lie down for two weeks, and relieved her completely. She is now alive. The heart disease is there, but this regimen, used once in a while as needed, keeps her comfortable.

Six years ago I saw in consultation a man who was completely filled up with water. He was obliged to sit up in a chair with a frame to support him. All his limbs except the left arm were useless. He was expectorating about two quarts of frothy spittle every twenty-four hours, and all the use he had of himself was to put the cup to his lips for the spittle. This man was so full of water that his heart sounds were not audible. Under

the above regimen and medication the water rapidly left him, and he became able to move about, to sleep in bed, and was comparatively comfortable for three years. He finally died.

I have used, as before stated, both apocynums for over twenty-two years, and feel absolutely confident the *Apocynum cannabinum* acts directly upon the absorbent system to restore its tone and to enable the cells to pass off the accumulated water. I must repeat that no fluid extract will do this, and again that no man who poisons his patients with gross doses of drugs can expect to obtain those finer and beneficial actions which follow a scientific use of medicines.

FREDERICK H. WILLIAMS.

13 PROSPECT ST., BRISTOL, CONN.

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To the Editor of the THERAPEUTIC GAZETTE.

SIR: I have just read the letter of Dr. Henry M. Cowen anent the claim of Dr. Dabney to the discovery of Apocynum and the use of that drug, running back to a date of "nearly twenty years ago." I wish to add my testimony to that of Dr. Cowen. In 1862-1864 I was practising medicine in the State of Indiana, during which time a friend gave me an old copy of Prof. John King's American Eclectic Dispensary or Dispensatory, *which was then an old book*—probably having been published more than twenty years. I distinctly remember Dr. King's language, as quoted by Cowen. I do not doubt that King's work was published at a date as far back as 1855. I am and have been a reader of eclectic medical literature, and well know that they have for years insisted upon the virtues of Apocynum in the treatment of "dropsies."

With Dr. Cowen, I personally am a *regular*, but believe in giving "honor to whom honor is due."

In closing, I will say that I read no journal that fills the place of the THERAPEUTIC GAZETTE. Recently I have been giving some attention to alkaloidal medication, and read Abbott's Alkaloidal Clinic with great care and pleasure; but *the GAZETTE has its place*—a place occupied by no other publication, a place which, in my judgment, *can be occupied* by no other publication, a place which has been reached and is held by *real merit*. I shall read the GAZETTE as long as I can pay the subscription price. Long live the THERAPEUTIC GAZETTE! I am too old to flatter. I shall try to secure some new readers for the GAZETTE for another year.

DR. Z. L. SLAVENS.



# —THE— Therapeutic Gazette.

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### THE CONTINUOUS USE OF DIGITALINE IN THE VASOMOTOR AND CARDIAC LESIONS OF SENILITY.

BY HENRY BEATES, M.D.,  
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Senility embraces that period of life during which one or more functions, as well as nutritional metamorphoses, when compared with the manifestations of the vital unit possessed by the individual, are recognized to be prematurely waning, and thus many are the instances of men and women who, being en-

dowed with vital energy sufficient to enroll them among the normal activities of advanced being, remain more or less disabled or invalidated because of this premature failure of some special organ or system to adequately discharge function. This retrograde process has an insidious origin, manifesting itself much earlier in life than we are prone to imagine, and, primarily, as a rule, in the vasomotor system. This great system has not as yet received the attentive study it should, and its direct relationship to functional activity, whether it be of brain, special sense or organ, is such that it is not an exaggeration to state that life itself depends thereon.

Nutrition, then, active in the fullest sense

of the term, is the condition determining the normal relationship of function with vital unit and is intimately associated with the perfect fulfilment of vasomotor function, because the distribution of pabulum to each cell and organ is directly dependent upon the physiological integrity of this nervo-sanguineous system.

The first physiological symptoms of senility will almost invariably be found with some portion of the vasomotor system, and that which is most objective consists in preternatural fulness of the superficial veins. This condition, of course, represents a far more advanced, although not visible, disturbance in the minute radicles, both of the arterioles and venules, and when present for some length of time, is associated with the symptoms of diminished function; therefore we have slight defects in intellection; the details of every-day life are forgotten, and the victim finds it necessary to utilize the memorandum tablet, instead of relying upon memory. Sleep is less refreshing, and is interrupted by slight insomnia. Some failure in vision and obtunding of hearing coexist. Respiration is habitually augmented in rate, and the ordinary activities of life, formerly free from any sense of discomfort, are now associated with more or less dyspnea. The digestive organs are all less active than before, and the disturbances especially noticeable are those accompanied with passive hyperemia and diminished absorption. The disturbances of the hepatic functions manifest themselves in paroxysms of headache and pruritus; the itching of the nose is especially noticeable, and is often contemporaneously present with similar annoyances located in areas of the back and lower extremities. This symptom is also an evidence of diminished supply of pabulum to peripheral sensory nerve terminals. Emaciation, while not marked, is pronounced, and the usual rotundity, characteristic of the vigor of life, gives place to the well known diminution in weight and wrinkling of the skin. The function of the sphincters, especially the vesical, is markedly impaired, and the passive hyperemia of the kidney gives expression to its existence by albuminuria often associated with casts.

The group of symptoms just enumerated, if the condition is well advanced, frequently assumes a clinical picture similar to that of organic disease, and thus has the writer seen what he believed to be senile softening of the brain, presenting a typical clinical picture, as

demonstrated by a failure to recognize the members of family, inability to realize living at home, and re-living boyhood life and oblivious to time and place, totally disappear under the treatment to be described—a fact demonstrating that the failure of functional activity may be due under these conditions, not to the death of the cell, but the absence of nutriment necessary to the maintenance of its vital phenomena. Of the cardiac conditions we have either fatty degeneration of the myocardium itself, cloudy swelling, or some type of retrograde change, either alone, which is exceedingly rare, or associated with gross lesions in the radicles and larger arteries.

Indeed, the changes in the cardiac muscle are, in ninety-nine cases of a hundred, *secondary* to a *primary* lesion of the peripheral arterial system. This fact is worthy of especial emphasis, and is to be considered in formulating a prognosis, other things being equal, with any given condition. Elsewhere will some facts associated with the physiology of the circulation be elaborated, and it will suffice in this connection to simply state that the *propelling* power of the arterial system, by reason of its vasomotor factors being diminished in senility and capable of being restored to the percentage longevity of vital unit involved, will result in the establishment of lost equilibrium. The symptoms associated with what has hitherto been considered "senile heart" are habitually augmented rate, diminution of resistance, and edema of the extremities; of course with these we have the bronchial disturbances, falsely called "asthma," and, in advanced cases, various forms of dropsy. The treatment of these cases with digitalis, alcohol, strychnine, strophanthus and nitroglycerin finds its limit of usefulness far down the scale of possible achievement, and the premature death of all such so afflicted has been the outcome of *secundum artem* methods.

It is taught that in the condition just described arterial tension is *increased*, and therefore digitalis should *not* be employed because by further augmenting arterial pressure it will produce apoplexy, and otherwise endanger the life of the sufferer. Careful study demonstrates that when the venous side of the circulation is tortuous and distended with blood, the arterial side possesses *less* than its normal, and while the aortic valves close with pronounced force, instead of its being the result of arterial tension, it is actually dependent upon the *weight of the column of blood*,

which, not being propelled by what may be considered vermicular contraction, fills the non-elastic vessel as if it were an iron pipe; therefore we have *weight* and not active force, and consequently *diminished* and not augmented arterial tension. What obtains in the aorta, is an expression of the whole arterial vasomotor system; consequently we have this disturbed circulatory equilibrium. The cerebral phenomena, so common in this condition, manifest themselves in their worst type, by symptoms suggestive of apoplexy, and not uncommonly does the patient complain of localized numbness, which after a shorter or longer duration culminates in confusion of thought, partial loss of consciousness, somnolency, loss or confusion of speech, and marked loss of power in groups of muscles.

This condition must not be confounded with true apoplexy, by which is meant rupture of a large arterial trunk, such as the middle meningeal or striate artery, because they are dependent upon either transient ischemias—that is, the terminal vessels failing to transmit blood to the part by reason of the lack of propelling power—or to actual ruptures of venous radicles, directly due to the overdistention characteristic of the venous side.

For years has the writer boldly treated these cases, with success, with heroic doses of this *special derivative* of digitalis, to be described.

The *continuous use* of the remedy is absolutely essential, because the senile condition underlying the causation of all of these phenomena is a permanently altered vasomotor system. The treatment with which these conditions have been successfully held in abeyance for years, and disabled life so improved that comfortable existence has been vouchsafed, is the exhibition of digitaline, and in doses necessary to produce the desired effect. The term "digitaline" is, by the shops, unfortunately employed to represent several active principles derived from digitalis, and as each one of these principles possesses an action peculiar to itself, many of which are diverse, it is evident why contradictory opinions prevail concerning the employment of this drug in this class of cases.

*Merck's German digitaline*, so called, is the drug the use of which for years has enabled the presentation of the above facts to be practicable. Chemically this is not "digitaline," but what should be called digitalein;

it possesses a chemical formula of its own and is extracted from digitalis by a complicated process, after a tannate is first precipitated from an *infusion*. It is freely soluble in water and therefore especially adapted for hypodermic exhibition, and as it is only sparingly soluble in alcohol is present in the tincture in a correspondingly small percentage, and thus is seen the fact that it is a separate and distinct drug, as different from the other products as is morphine from arsenious acid. Its especial power is to restore the *propelling power of the arterial system*, whereby, secondarily, for obvious physiological reasons, the cardiac action approaches the normal, and thus is the circulation in the venous and arterial side balanced. This being accomplished, the vast group of morbid phenomena briefly indicated vanish. The doses necessary to effect this vary from the tenth as a minimum to one-half of a grain as the maximum, and must be exhibited from three to six times daily as the conditions demand. A number of cases have been taking this quantity for several years, and have presented no injurious consequences whatever.

If digitalis were used so unremittingly it might produce a cardiac hypertrophy; this is mentioned because the possibility of such an undesirable accident has been advanced as an argument against the continuous use of digitalis (crude drug).

Careful clinical study, having in view the detection of such a condition, with the use of digitaline, finds that the frequently increased area of cardiac dulness diminishes; therefore, other things being also considered, it can be legitimately concluded that hypertrophy is not produced by such method of administration. Again, various degrees of rigidity of the larger arteries, so commonly detected in advanced conditions of senile vasomotor disturbances, have largely vanished under the continuous use of the drug, and when the function of the artery is considered it is not difficult to understand that the "sclerosis" of the vessels, when not due to calcareous infiltration or atheromatous changes, is a true thickening and rigidity of the arterial walls, comparable with a similar process always present in the ligaments and capsules of a joint not functionally active, and, just as in the latter, when normal motion is restored, in the former we have, by reestablishment of the expansion and contraction necessary to calibration, nutritive activity operative, and normal plasticity of structure effected. When

normality is reestablished, it can be maintained by the continuous use of digitalein, just as long as the unit of vitality is endowed with time existence.

After the results above described have been secured, judgment and skill will determine a modification of the plan of administration of this valuable vasomotor agent. As a rule, after months of uninterrupted use of large doses, the tissues involved have reacquired that degree of normality which makes practicable the continuous exhibition of smaller doses, in order to maintain the restored circulatory equilibrium.

### *THE ETIOLOGY AND TREATMENT OF LARYNGEAL TUBERCULOSIS.\**

BY P. S. DONNELLAN, M.D.,

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The presence at the clinic to-day of three cases of laryngeal tuberculosis, each presenting a different stage of the disease, gives me the opportunity to make some observations on its etiology and treatment. Before we examine the patients I wish to refresh your memories with a few remarks on the diagnosis of tubercular laryngitis in order that you may better appreciate the importance of studying carefully each individual case, and of instituting a method of treatment exactly suited to it, for in no pathological condition is the avoidance of routine therapeutics more desirable than in tubercular laryngitis.

All competent observers agree upon the extreme rarity of primary tuberculosis of the larynx. In the majority of instances it is a local manifestation of preexisting tubercular disease in the lungs, or occasionally in other organs contiguous or remote. Before we enter upon the study of the diagnosis and treatment of laryngeal tuberculosis, let me briefly refer to the pathology of the disease. Accepting the theory of Koch that it is due to the invasion of the larynx by the tubercle bacillus in an individual who, by heredity or by environment, is liable to the disease, or whose resisting power has been enfeebled by previous illness—notably of the respiratory tract—we can readily understand how infec-

tion may take place; tuberculosis of the lungs being followed by that of the larynx, or, in those rare instances when the latter is the seat of the disease, the secondary involvement of the lungs takes place in a few weeks or months.

In the limited time at my disposal it is impossible to give even an outline of so vast a subject as the morbid anatomy of tuberculosis, so I will content myself with a brief description of the different forms of the disease as seen with the laryngoscope. Many authorities—notably J. Solis Cohen of this city—have drawn attention to a decided anemia as the earliest sign of laryngeal tuberculosis. This we can very readily verify in one of the patients whom I will presently show you. It seems to be an evidence of the general feebleness of the patient. Infiltration is usually the earliest local sign of the disease. It generally begins in the interarytenoid space, in one or both arytenoids, or in the epiglottis, but as Lennox Browne has pointed out, in patients whose profession involves much use of the voice the swelling may first be seen in the vocal cords and ventricular bands. In more advanced cases typical tubercular ulcers are observed. These ulcers are small, superficial, "mouse-nibbled," and as a rule are the result of breaking down of infiltrated areas. They are noticed most frequently on the arytenoids or on the laryngeal face of the epiglottis, and the presence of numerous tubercles on their surfaces indicates their true character.

Turning our attention to the symptoms of the disease, we find that some impairment of the voice is the first noticed. This may vary from a slight hoarseness to a complete aphonia, depending on the site, extent and character of the local lesion. Cough is almost always present, and from its frequency and paroxysmal character causes great prostration. It results from irritation produced by the local lesion, or reflexly from the pulmonary complications. Expectoration, which is slight at first, becomes purulent in advanced cases, especially when the lungs are much involved. Hemorrhages from the larynx are rare in tubercular disease, but occasionally occur after a paroxysm of coughing, which causes a rupture of one or more laryngeal capillaries. Dysphagia is probably the most distressing of all laryngeal symptoms, and if unrelieved causes rapid emaciation and invariably hastens the fatal termination of the case. It is so extremely painful when ulcers have formed on the epiglottis that patients

\* A clinical lecture delivered at St. Agnes' Hospital, June 25, 1898.

who have developed this complication will refuse even the most bland diet rather than undergo the agony which swallowing entails.

In the treatment of laryngeal tuberculosis constitutional measures must not be lost sight of, and every effort should be made to increase the power of resistance of the patient. With this object removal to a dry climate of moderate elevation and equable temperature should be urged. The patient should live in the open air and sunlight as much as possible, and take an abundance of animal food, eggs, milk, and fresh vegetables. Suitable exercises should be insisted on, and when the opportunity occurs massage carefully applied will be found of value in improving the nutrition of the patient. General hygiene should have proper attention—in a word, the sufferer should be placed in the best possible condition to insure the restoration of his health. Certain symptoms not directly referred to the larynx require appropriate treatment. Of these cough, dysphagia, night sweats and diarrhea are the most prominent. Cough can generally be controlled by insufflations of morphine,  $\frac{1}{4}$  grain, with 10 grains of powdered acacia, applied to the larynx with a powder-blower every four or six hours; or, if this is impracticable, the following prescription will be found of service:

℞ Codeinæ sulphatis, gr. iij; ,  
Sodii bromid., gr. 120;  
Syrupi Prun. Virginian., f 3 ij;  
Aque, q. s. ad f 3 ij.

Misce et Sig.: A teaspoonful every four hours for cough.

Night sweats are relieved by fifteen-grain doses of camphoric acid taken an hour before bedtime, as recommended by H. A. Hare, or, where insomnia is also present, by ten-grain doses of sulphonal in hot milk about three hours before bedtime. Diarrhea can be checked by careful attention to diet and by ten-drop doses of aromatic sulphuric acid every two or three hours, combined with half a drachm of paregoric if much pain is present. Dysphagia is usually relieved by the local application of cocaine, either in the form of a spray or with a brush, the four-per-cent. solution being a useful strength. Wolfenden's method of feeding—the patient being placed in the Trendelenburg position while he sucks liquid nourishment through a tube—will sometimes be found of service. In extreme cases rectal feeding will have to be employed until the larynx is improved by local treatment sufficiently to allow the passage of food over the epiglottis.

The local treatment of laryngeal tuberculosis has materially improved in recent years, because our knowledge of the pathology and morbid anatomy of the disease has become more accurate, and our therapeutic resources more extensive and rational. Previously all cases were treated locally with caustics in varying strengths, regardless of the condition of the larynx, or of the distress caused to the patient by their application. It was soon recognized, notably by Bosworth, that a soothing method of treatment was indicated, and caustics were abandoned for cleansing sprays followed by anodyne insufflations, resulting in much benefit to the patient.

A distinct advance in laryngeal therapeutics was made when Krause advocated the local use of lactic acid in the treatment of tubercular laryngitis. The patient's larynx having been cleansed by a spray of Dobell's solution, and a four-per-cent. solution of cocaine having been applied to the affected area, the ulcers are thoroughly rubbed every third or fourth day with a solution of lactic acid, varying in strength from twenty per cent. to eighty per cent. The applications are best made with a laryngeal cotton applicator. The improvement is at once manifest, and I have notes of several cases where, by this treatment, the ulcers healed perfectly. Even in cases where the lung involvement was very advanced, it should be advocated, as, although a cure may not be expected, the relief to the patient is usually very great. Herying has recommended curetting the ulcers before the lactic acid is applied in order to remove the necrotic tissue and thus secure a more thorough action of the acid.

Donelan published an article in *The Lancet* (London) in December, 1897, describing a syringe he had specially devised for the submucous injection of minim doses of pure guaiacol into the tubercular infiltrations of the larynx preceding ulceration. He has had marked success in several cases from this mode of treatment, which seems to have the advantage of not producing areas liable to secondary infection from tubercular sputum, as sometimes results when the curette is used. Early tracheotomy has been advocated by some authorities on the ground that absolute rest of the voice is insured, and topical applications are more easily made, but is condemned by others, who deny that these results are obtained in their hands. It is, however, admissible in impending suffocation.

NOTE ON A SIMPLE METHOD OF CURING  
APHONIA.

BY ALBERT ABRAMS, A.M., M.D.,  
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For the relief of aphonia and dysphonia of laryngitis, no method equals the following: First mark approximately with a pencil on either side of the neck the point in the thyrohyoid membrane where the internal laryngeal branch of the superior laryngeal, the nerve of sensation to the larynx, passes into the latter organ. Over the points marked with the pencil freeze with chloride of methyl or a spray of rhigolene. Freezing must be thorough. The relief in most instances is almost instantaneous, and phonation, which was before difficult or painful, can be performed with perfect freedom. The relief thus afforded is of signal advantage to many professionals. In some instances the relief is of short duration only, in which cases freezing must be done again or several times.

I have used this relatively painless method for at least six years, and the results in most instances have been phenomenal. This same method may be employed with advantage in neuroses of the larynx, like laryngismus stridulus, spastic aphonia, and in the laryngeal crisis of tabes dorsalis. The use of any therapeutic agent based on empiricism alone will yield clinical results wholly at variance with strict scientific inquiry. I have therefore endeavored by theory and experimentation to evolve the rationale of congelation as a therapeutic agent. The following hypotheses are presented:

1. Freezing may act as a counter-irritant and the results achieved may be due to local or reflex action.
2. Freezing may act by producing physical changes in the underlying structures.
3. It may act as a shock.

The first hypothesis may be contravened in part on the assumption that freezing, unlike counter-irritation, is immediate in its action, of greater potency, and followed by slighter reaction. We know, however, that the application of cold to the superficies of the body induces through the automatism of reflex action contraction of the arterioles, especially in parts subject to inflammation, thus materially inhibiting the process of inflammation. The degree of cold secured by the usual methods of freezing is neither of sufficient intensity nor duration to warrant such a postulate. The reduction of tempera-

ture, as I have determined by experiment,<sup>1</sup> is never sufficiently great to firmly sustain the first hypothesis. By *reenforced freezing*,\* which I have described elsewhere, a reduction of temperature to the freezing point may be secured.

The second hypothesis may be disposed of by briefly citing the results of certain experiments. If the skin over the large nerves of rabbits is frozen daily and the nerves afterwards examined, no degenerative changes in the latter can be demonstrated, and it is only after freezing is carried to an inordinate degree and repetition, unlike its clinical application, that any degenerative nerve changes can be demonstrated; and this degeneration, I have observed, involves not only the nerves, but likewise the superimposed tissues.

I am inclined to accept the final hypothesis as the most probable, viz., that freezing acts as a shock, inhibiting the nerve functions for a variable period. While conductivity is an expression of physiological nerve activity, pain or disturbed function is an expression of pathological nerve activity. The inhibition of the activity of a pathological nerve expresses the ideal attainment of therapeusis. This is secured remotely by analgesic or directly by local medication. The latter is the more rational method and can be attained by freezing, which, acting like a shock, inhibits the functions of the nerve, thereby putting it in a condition of rest.

784 GEARY STREET.

THE VALUE OF SYSTEMATIC PHYSICAL  
TRAINING IN THE PREVENTION  
AND CURE OF PULMONARY  
TUBERCULOSIS.†

BY E. FLETCHER INGALS, M.D.,  
Chicago.

The absence of systematic study by physicians and the very meager literature compels me in this paper to be more or less dogmatic, yet there are numerous recognized facts that seem to justify calling attention to this subject, notwithstanding the absence of careful clinical observations.

One of the most common observations made by medical men is that the long, narrow, flat-chested individual is the one who is most liable to the development of tubercu-

\**American Medico-Surgical Bulletin*, December, 1895.

† Presented to the American Climatological Association, September, 1898.

losis; and we have all observed that in patients presenting this form of chest the chances for recovery are reduced to a minimum. This single observation is sufficient to suggest that systematic physical training, which would develop the respiratory muscles, expand the thoracic walls, and correspondingly increase the pulmonary capacity, would be of great service, not only in preventing tuberculosis, but in curing its early stages.

Pathology teaches that the collapsed air cells furnish a most favorable nidus for the development of the tubercular process; therefore, for prevention of the disease, we should adopt measures to expand the lungs and bring the air cells into the best possible working condition. It is probable that in most cases there is a pretubercular, or at least an early tubercular, localized anemia which, by diminishing the nutrition of the parts, lessens their resisting power and makes them peculiarly susceptible to the malign influences of the tubercle bacilli and the toxins which they produce.

From the wide-spread prevalence of tuberculosis, which is said to affect eighty per cent. of the human family, it is probable that all of us are at times infected by the Koch bacillus, but so long as the general and local resistance is adequate it is harmless, and the disease can make no progress. This hypothesis is supported by the fact that, notwithstanding the large percentage of people affected by tuberculosis, the majority of them recover. Even when the disease attacks the lungs, organs in which the conditions for the spread of the process are peculiarly favorable, it does not prove fatal in more than about twelve per cent., whereas we have good reason to believe that from thirty-five per cent. to forty per cent. of the human family are at one time or another affected by pulmonary tuberculosis. In most of those who recover the disease has made but little progress and it is only at the autopsy, after death from other causes, that its presence is detected. If these views are correct, it is clearly our duty to those whose health and lives are placed in our keeping to recommend measures likely to strengthen the resisting power of all the body tissues, but more especially those of the lungs, because they afford the most favorable conditions for the spread of the disease.

Tuberculosis attacking the skin and the bones is so limited by the natural processes that even at its worst it often extends over many years, and in many cases Nature throws

up an efficient barrier about the infected tissues which prevents extension, and ultimately recovery takes place. Similar processes should be encouraged in the lungs. It is now commonly believed that a high altitude affords the best condition for the prevention of pulmonary tuberculosis and for the cure of its early stages. It is probable that in large part this beneficial influence is due to the increased distention of the air vessels, caused by the rarefied atmosphere and by the patient's efforts to more completely fill the lungs. This expansion of the air cells not only empties them of the noxious principles that if left to themselves would develop into a serious disease, but equalizes the pulmonary circulation and removes the localized anemia which may have occurred either as the result of the deficient functional activity of the part, of pressure, or of partial obstruction of the nutritive vessels. As a means, then, of prophylaxis, our first measure should be to teach the patient to breathe deeply; and as a means of curing the early stages of the disease (which amount really to a little more than prophylaxis for the remaining healthy portions of the lungs) the same methods are most important.

It is a matter of surprise, to those who have not given the subject thought, to find how superficially many people breathe and how little they know of this most important physiologic process. It is common to find persons who get quickly out of breath who would not do so if they only knew how to fill the lungs, and when to fill them during exertion. For this reason careful physical training is of the greatest importance, and physicians should see to it that their patrons do not neglect any of the precautions which may give their lungs the best resisting power.

One of the first injunctions we should place upon the patient who has any reason to anticipate the development of pulmonary tuberculosis is that he should expand the lungs thoroughly several times every day. We must also personally inspect his mode of breathing to see that he knows how to carry out our instructions. In order to expand the lungs the patient should be directed to draw in the abdominal walls and take a long, deep breath, while the shoulders are carried gradually backward, and the ribs and sternum elevated as far as possible; he should hold this breath for a few seconds and then blow it out slowly and forcibly through a small opening between the lips. In this way not only the air cells

which can be reached by direct inspiration are inflated, but also those at the apices and along the borders of the lungs, which otherwise might not be distended. One has only to try this method a few times when out of breath after active exercise to ascertain how much more effective it is than the ordinary method of respiration employed by those who have had no physical training. By a few deep respirations such as just described, the healthy individual who has exhausted his breath will find that he can speedily recover it; whereas, by the usual respiratory efforts, he will pant for several minutes before he can obtain relief.

I have referred to the fact that the long, narrow, flat-chested individual is most likely to contract consumption and is least likely to recover from it. The questions arise: First, can systematic physical training cause any considerable change in the form of such a chest? Second, is such training beneficial after disease has actually developed? Without fear of contradiction, the first question may be answered in the affirmative. In the space of a few months such a person may generally be taught to expand the chest two or three inches more than previously, and after the exercise has been kept up for a sufficient length of time the form of the chest will be found greatly improved and the circumference increased very considerably. This, then, may be considered a most important prophylactic measure.

At Amherst College training is directed merely to securing general good health without attempts at feats of agility or even the development of powerful muscles. The records for twenty years show that in 2106 students who had exercise only half an hour four times a week, there was a gain of  $2\frac{1}{8}$  inches in chest measurement during their college course. At Bowdoin 200 students with the same amount of work gained an average of  $1\frac{1}{8}$  inches in chest measurement in six months. Archibald MacLaren (Physical Education) recommends for harmonious development: First, an introductory course of posturing and light exercise with dumb-bells and bar-bells; second, leaping, horizontal beam, vaulting (bar and horse); third, parallel bars, trapeze, swinging rings, ladders, horizontal bar, the plank, escalading; fourth, climbing the pole (fixed, slanting, and turning), the pair of poles, the rope, rosary and mast. By one hour's daily exercise in this way twelve young men from nineteen to twenty-eight years of age gained  $2\frac{1}{8}$  inches chest

measurement in eight months, and fifteen young men averaging eighteen years in four and a half months gained  $2\frac{1}{8}$  inches chest measurement.\* Although the increased chest measurement in these cases may have been partly due to natural growth, the rapid and pronounced development leaves no chance for doubting the effects of exercise, and we may safely answer that physical training may in a comparatively short time cause decided improvement even in the long, narrow, flat chest. These facts should also make us more persistent in our efforts to secure proper respiration in all those who are predisposed to pulmonary disease.

Slightly altering the second question, we ask, When tuberculosis has become established in the lungs, is it possible to check the process or promote recovery by physical development? This I think we may also answer in the affirmative. We know that the disease progresses from the original point of infection through numerous other foci, each commencing and spreading in much the same manner as the original infection; therefore, the more thoroughly the lungs are aerated, the greater resisting power will be acquired by parts still healthy but subject to infection, and the greater chance will Nature have to throw up barriers against the disease. Consumption is a disease of such long duration that in the majority of cases there is a period of several months during which by this means, aided by other measures, we may reasonably expect to check the process, and I may confidently assert that no small part of the credit in favorable cases must be given to pulmonary gymnastics.

It has been asserted that athletes are short-lived and that the majority of them die of pulmonary tuberculosis. Whether this assertion can be substantiated or not is an open question; but even if it is founded upon facts, we must take into consideration the further fact that the majority of professional athletes live very irregular lives, excepting for short periods when they are in training for some special event, and it is more than probable that with them early death or carrying off by consumption must be attributed largely to dissipation.

The examination of statistics from various colleges has shown that non-professional college athletes, in nearly all cases, outlive their expectancy as estimated by the most

\*Cheesman: Reference Handbook of the Medical Sciences, vol. ii, p. 759.



careful life insurance companies. Although a considerable number of these amateurs ultimately die of pulmonary tuberculosis, the percentage does not appear to be as large as among men who have had no physical training.

My friend, Dr. Otto T. Freer, who has assisted me in the preparation of this article by a very careful search of the journals and books in the Newberry Library and of such articles as appeared likely to afford any information in the library of the Surgeon-General's office at Washington, was unable to find anything of value bearing upon this subject, excepting in the monograph of Dr. John Ed. Morgan, entitled "University Oars," which was published in 1873. Out of 255 oarsmen who had rowed in the English University boat races, Morgan obtained replies to his letters from 251. These 251 were alive at the close of the year 1869. Thirty-nine old oarsmen had died; of these, seven died of consumption and two of other forms of chest trouble. Morgan says that, generally speaking, these cases were not of that physical vigor that a long boat race requires. One of these men burst a blood-vessel while rowing and died some years after of consumption. Another had consumption so many years after his rowing that there could have been no connection between the two. The next case died twelve years after the race. Morgan remarks that he may perhaps have injured himself. Another oarsman died of consumption four years after the race. Morgan's conclusions are that athletics tend to prevent consumption, but that people of delicate constitution should avoid training, as overexertion may possibly predispose to consumption; his statistics, however, do not appear to justify the latter conclusion.

In the *New York Medical Journal* of July 23, 1898, E. Palier quotes Jageras as stating that consumption is less common among gymnasts than others. Palier himself holds the common opinion that outdoor exercise is a good prophylactic, but does not consider chest development alone sufficient to prevent the disease. He cites the frequency of the disease among laborers and soldiers, but gives no statistics. In this connection I may state that consumption is a common disease among those living on farms, although it is usually supposed that they are more exempt than others. The fact of the matter is that consumption is frequent among all classes, and no one need expect to avoid it by following out any one method of exercise or by any one mode of life.

In "Diseases of Modern Life," Dr. B. W. Richardson inveighs strongly against "training" as done for physical contests and thinks athletes shorten their lives by it. He says nothing about phthisis, but attributes the evil effects of excessive athletics to heart strain. He says: "There is no sign, no evidence anywhere, that the greater culture of the physical strength has favored the longevity of an individual or the vital tenacity of a race." He thinks that excessive physical exercise insures premature decay and early death, and mentions the Jews as an example of a race of not a high physical standard, and of apparent feebleness of body, but he regards them of all civilized races first in vitality. On the contrary, it has been recently stated that the Jews are peculiarly prone to phthisis.

In estimating the good or ill that may result from systematic physical training, it must not be forgotten that the unfavorable statistics have been obtained from a study of professional athletes or at least from amateurs who have trained excessively. It is a well established fact that the firm muscles, the rounded chest and the large respiratory power developed in young men by moderate exercise are seldom lost even after the exercise has been suspended, but continue for many years or even for life with very little subsequent exercise; therefore, the importance to the young of proper physical culture, particularly of the respiratory muscles, cannot be overestimated.

As to the kind of exercise that is best for this purpose, it is probable that that recommended by Maclaren is as good as could be devised for its general effects. Nearly all forms of exercise that take the person out-of-doors, such as horseback riding, tennis, ball-playing, golf, bicycling, rowing, running, etc., seem well suited to improvement of the general health; but the methods that have seemed to me most suitable for continuous practise, and most beneficial for the development of the chest, are by Indian clubs, the rapid use of small dumb-bells, the horizontal bar, the trapeze, and boxing. In all of these the patient of necessity learns to breathe deeply and acquires strength of the respiratory muscles; but most important for our special purpose is the practise of frequent deep inspiration, whereby the lungs are thoroughly filled, and forcible expiration, which inflates the air cells at the apices of the lungs. This should be repeated several times daily. In order to secure regularity in this exercise

it is generally necessary to recommend for our patients some form of simple inhaler that may be carried in the pocket and used at stated intervals throughout the day. At the same time, according to indications, some stimulant or sedative inhalant may be advantageously employed for its effect upon the mucous membranes of the upper air-passages, but more particularly for its influence in securing regular use of the inhaler; for many persons will take some medicine regularly who would soon discontinue systematic inhalations of non-medicated air.

The inhaler that I employ is a simple hard-rubber tube about four inches in length and half an inch in diameter, filled throughout its middle two-fourths with corrugated blotting-paper, and having corks for each end so that it may be closed to carry in the pocket. The medicament is dropped on the blotting-paper and the patient is directed to take long deep inhalations through the inhaler every two hours during the day. After the instrument is freshly charged, the patient inhales but twice, two hours later four times, two hours afterward six, and at the end of the next two hours eight times. The instrument is then to be recharged. The patient is directed to draw in the breath deeply, to hold it for a few seconds and then expire forcibly with the lips nearly closed. There should be felt a sense of smarting or slight discomfort as low as the fourth rib, lasting from three to five minutes, after each inhalation.

The remedies that I employ consist mainly of thymol, menthol, tincture of iodine and formalin in solution of alcohol. Chloroform may be added to any of these to relieve cough. The inhaler is charged with from five to fifteen minims of the solution, according to the duration of the sensations which it causes. The strengths commonly employed are: Thymol, one to two grains to the ounce; menthol, thirty to sixty grains to the ounce; formalin, half drachm to one drachm to the ounce; and tincture of iodine, from two to four drachms to the ounce. Chloroform may be added in any desired proportion. I am satisfied that these inhalations are of signal value in the treatment of laryngitis and tracheitis, because by them the patient may make positive applications to the upper air-passages, which he could not do himself either by sprays or ordinary inhalations.

This method of treatment appears to me also of undoubted value in the prevention and cure of pulmonary tuberculosis, though I do not believe that these or any other

inhalants have any direct effect upon the tubercle bacilli; but they may mitigate the catarrhal inflammation of the mucous membrane of the upper air-passages that attends the tubercular process. The chief value of this method undoubtedly results from the deep respiration and consequent distention of the air vesicles and development of the respiratory power which is obtained by its use. Regular, systematic deep breathing cannot be secured with most patients unless some medicament be employed at the time, therefore it is best to use inhalants that cause well marked sensations and of known antiseptic qualities.

36 WASHINGTON STREET.

#### *APOCYNUM CANNABINUM*—"THE VEGETABLE TROCAR."

By T. S. DABNEY, M.D.,

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The publication in your issue of June 15, 1898, of my letter in reference to the use of *Apocynum cannabinum* in dropsical affections has caused me to be inundated with communications from every section of the country. It is utterly out of my power to answer in full these letters, and as my stock of reprints of my original article, published in 1880, is exhausted, I feel impelled to furnish the profession, through your widely circulating journal, a rather complete history of a plant that has been discovered and rediscovered a dozen times—a plant growing wild from Canada to Mexico, from the Atlantic to the Pacific. I am especially impelled to contribute this article to the profession on account of my having had twenty years' experience with the remedy in question—a remedy scarcely mentioned in works on therapeutics and materia medica. Shoemaker devotes six lines to telling nothing about it. The last edition of the U. S. Dispensatory has about ten lines of misinformation about it. It says: "It is powerfully emetic and cathartic, sometimes diuretic, and promotes diaphoresis and expectoration." It neither promotes diaphoresis nor expectoration to any extent. It causes emesis and catharsis only when improperly used. It is the most powerful indirect diuretic known, and herein lies its great value in dropsies; and to its diuretic action alone is due the invigorating effect of this remedy.

Ascitic fluid, as is well known to all medical men, is highly albuminous, hence tapping

a patient is practically equivalent to bleeding him, and the greater the amount of fluid removed the greater the resultant weakness. Dropsical patients literally feed on the albuminoids contained in their closed cavities, and rapidly fail after several tapplings. Purgatives act similarly by removing the albumen with the water; but when the ascitic fluid is forced through the renal filtering plant the albumen is halted and thrown back into the circulation, and the water alone is allowed to escape, thereby relieving the dropsy and feeding the patient, who has been slowly bleeding to death into one or more of his closed cavities. Hence it is that patients taking this medicine rapidly gain in strength in spite of its depleting effects. The appetite is usually rendered sharp, and this, coupled with the reabsorption of albumen, accounts for the rapid results so often obtained. It is not uncommon for a patient suffering from general anasarca to pass one or two gallons of urine daily, until the fluid is all removed and the patient resembles a dried herring.

Bartholow, Waring, Hare, Ringer and H. C. Wood make no mention in their works on materia medica of this unquestionably very valuable remedy. The cause for the expurgation of apocynum practically from the materia medica is easily found. Manufacturing chemists, through ignorance, carelessness, or greed, have foisted upon the profession a number of radically different drugs under the name of *Apocynum cannabinum*, hence results obtained by different physicians using different medicines under a common name varied so widely that the drug was eventually discarded altogether. The *Apocynum androsæmifolium*, an utterly worthless weed, is frequently substituted for the *Apocynum cannabinum*, which it very closely resembles in appearance. The leaves of the *Apocynum cannabinum* are single and sessile at the bases of the branches, whereas those of the *Apocynum androsæmifolium* are always in pairs. This is a marked difference, and should serve to readily distinguish one from the other.

Owing to the name of milkweed, by which this plant is widely known, many mistakes are made, for there are a number of totally dissimilar plants called in different parts of the country milkweed—*Asclepias incarnata*, for instance. It is also called dogbane, from its supposed anti-canine properties. Owing to the peculiar way the long slender roots of the plant have of crossing and twisting around each other, the name of "cross root"

has been given it by the Catholic Indians of Mississippi, whose simple faith sees the hand of God and the sign of the degradation of His Son in the flora and fauna everywhere. It was under this name of cross root that my attention was first called to it by a country storekeeper. I was told that Indians and negroes claimed it possessed great virtues in dropsy. I bought all the roots my friend had and requested a pharmacist in my neighborhood to make for me a strong tincture—one ounce of the roots making six ounces of the tincture. For three years I conducted experiments with this, to me, totally unknown remedy. The results obtained were so remarkable that Ward 24 in the Charity Hospital was set aside for the exclusive use of patients suffering from dropsical effusions.

At the end of three years of original experiments I was requested by a number of my colleagues to give my results to the profession. This I was willing and anxious to do, but what was the name (botanical) of my *crux radix*? After much trouble and expense, I succeeded in getting several living plants, which were transplanted in my yard, where they remained until they flowered, and then, and not till then, did I realize that I was using *Apocynum cannabinum*. My paper was read before the New Orleans Medical and Surgical Association in December, 1880. The Indians all over this country seem to have been fully informed as to the virtues of this plant.

Dr. Rollin B. Gray, in the *New York Medical Journal*, 1894, vol. lx, claims that in 1820 his grandfather, Judge John Gray, of Chautauqua county, N. Y., acquired a knowledge of its virtues from the Cattaraugus Indians, who called it "Nunquot." The Judge is said to have had great success in treating dropsies. Through Judge Gray the virtues of the apocynum were made known to his sons, Drs. John F. and P. W. Gray, as well as his grandson, Dr. Rollin B. Gray, who used it as early as 1866. Drs. Valentine Mott, John C. Peters and the elder Flint are said to have had very great confidence in this remedy.

Dr. James P. Kimball, Surgeon-major U. S. Army, stationed at Fort Wingate, New Mexico, tells us (*New York Medical Journal*, 1895, vol. lxi) that it is in common use among the Sioux Indians in Dakota and Montana, and among the Cheyennes in Indian Territory. By these Indians it is used almost exclusively for the deadly bite of the rattlesnake. Powdered roots are laid on the point

of entrance of the fangs after the parts have been well scarified, and then an infusion of the roots is given internally. According to Surgeon Kimball he believes the results obtained are admirable. The Indians claim the cure infallible.

Dr. J. H. Lowery, in the *New York Medical Journal*, 1894, vol. lx, sets up a claim of priority in the use of *Apocynum cannabinum* in aortic and mitral disease. He claims to have commenced its use in 1890. In the THERAPEUTIC GAZETTE, 1889, is an excellent article on the use of this remedy in disease of the heart especially. The author, Geo. R. Murray, M.A., M.B. Cant., physician to University College Hospital, England, does me the honor of quoting at some length my article published in 1880. It will be seen that Dr. Lowery cannot substantiate his claim. Mr. Murray claimed that the greatest benefit of the remedy would be derived in cases of aortic regurgitation.

In 1869 Dr. Jewett read a paper before the New York State Medical Society on the use of *Apocynum cannabinum* in removing dropsies, after failure with all known remedies. This paper when published created a pronounced sensation, and the Doctor was soon overwhelmed with letters asking the source of his supply, etc., the writers invariably claiming that no such results as those given in Dr. Jewett's paper were obtainable from the *Apocynum cannabinum* of the shops. Dr. Jewett was fortunately able to furnish to all correspondents a limited quantity of the roots, which grew in abundance near his home in Canandaigua county, and soon the journals were filled with the praise of this remedy, so aptly termed by Rush "the vegetable trocar."

On May 18, 1875, Dr. Hutchins reported before the Medical Society of the County of Kings, N. Y., a case of general anasarca treated with *Apocynum cannabinum* obtained from three leading New York pharmacies, the result being *nil*. Within forty-eight hours after the patient had been put on the genuine drug furnished by Dr. Jewett, every vestige of water had disappeared. Under date of February 16, 1875, Dr. Jewett wrote: "An experience of thirty years in its use has given me unbounded confidence, if properly used."

Dr. Mark Andrews, of Waterproof, La., states in the *Medical Brief* for August, 1898, that he has used apocynum successfully for forty years. I can add that twenty years' experience in its use has given me absolute confidence in my ability to entirely

discard the use of the trocar whenever a tincture, fluid extract or infusion of the bark of the root of the genuine *Apocynum cannabinum* can be obtained.

In 1826 Dr. M. L. Knapp published in the *American Medical Review and Journal* an article on the valuable diuretic properties of this herb. He was followed in 1833 by Dr. John H. Griscom, of New York, who published in the *American Journal of Medical Sciences* a very elaborate article on the same lines laid down by Dr. Knapp. At that early date commercial rivalry was not so keen as now, and besides most physicians prepared their own infusions and tinctures from herbs and roots, whose purity they could personally vouch for.

Is it not a shame that so valuable a remedy as *Apocynum cannabinum* has become almost unknown, on account of the unscrupulousness of our manufacturing pharmacists, who do not hesitate to foist upon us, in and out of season, a vast array of their own synthetic products? Will not some great house undertake a careful study of the true and the spurious Apocynaceæ and then furnish the profession with a tincture, a fluid extract, solid extract, and possibly the two alkaloids, apocynin and apocynein, that have so far been separated and recognized? These preparations must be of uniform strength. Cascara sagrada, that most valuable of all remedies in certain forms of constipation, would have shared a fate similar to that of *Apocynum cannabinum* but for a certain Western firm that always insisted upon using the bark of the *Rhamnus Purshiana* itself and never any substitute. Cannot this firm, that has furnished so many absolutely reliable products, undertake the manufacture of a fluid extract of *Apocynum cannabinum*? If so, the profession can rely upon its purity and its unvarying physiological results.\*

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\* The following is part of a letter on this subject recently received by the author from Parke, Davis & Co., of Detroit, Michigan: "We are pleased to inform you that we have had on the market for a considerable time past a fluid extract of the genuine *Apocynum cannabinum* Lin. We enclose you herewith one of our labels, which will doubtless be of interest to you. Being perfectly aware that the collectors of *A. cannabinum* are very likely to supply *A. androsamifolium*, we took particular pains some time ago to correspond with the very upright and reliable collectors whom we employ for the collection of this drug. We called their particular attention to the chances of confusion, and requested from them a distinct and categorical statement as to the genuineness of the supplies which we receive from them. In response we were assured that they were properly informed in the premises; that they were taking the utmost pains to avoid confusion of supplies; and that we

One of the most interesting and scholarly papers that has appeared lately upon the subject under discussion is from the pen of Dr. A. A. Woodhull, Colonel U. S. Army, stationed at Denver. On December 11, 1897, Dr. Woodhull contributed to the *British Medical Journal* an article on Apocynum. The eleven cases cited by him show clearly the characteristic action of the drug and its wide range, and I have not hesitated to avail myself of the valuable information in the Doctor's paper in this article. Indeed, I acknowledge now that I have unhesitatingly made use of all obtainable information on this subject. My main object in compiling such a long article and citing the names of so many physicians who have written on the same subject is to induce authors of books on *materia medica*, therapeutics and dispensaries to give this remedy its deserved recognition. My second object has been to induce some responsible manufacturing chemist to place a reliable preparation on the market.

Though many cases of general and local dropsies have come under my care within the past few years, I prefer to cite the first sixteen cases treated by me in the Charity Hospital of New Orleans, as these cases are of public record, and as they clearly illustrate the wide range of usefulness of the remedy under discussion. They are taken from a reprint of a paper read before the New Orleans Medical and Surgical Association, December, 1880.\*

CASES I AND II.—In March, 1878, in Wards 23 and 26 (Prof. J. B. Elliott's) I commenced using tinctura apocyni cannabini in ten-drop doses on two patients suffering from general anasarca due to Bright's disease. The patient in Ward 23 had been tapped many times. The usual diuretics and cathartics had been faithfully tried in both cases without any perceptible benefit. The stomach of the patient in Ward 23 became so irritable after taking the medicine two days that it had to be discontinued. A marked improvement, however, occurred in him, and he was able to leave his bed and return home. I

could depend upon the genuineness of the drug furnished us. Not content with this assurance from our collectors, we of course compel every shipment of *Apocynum cannabinum* to run the gauntlet of our drug experts and of our botanist before it is accepted and manufactured into fluid extract. Under the circumstances we feel that we have done our whole duty and have observed every possible precaution with a view of guaranteeing the therapeutic efficacy of our fluid extract."

\*For most of my notes I am indebted to Dr. David Barrow and Mr. D. H. Tucker (now Dr. Tucker), resident student Charity Hospital.

have not since heard of him. The patient in Ward 26 was entirely relieved in five days of all dropsy, and left the hospital believing his troubles over. He has not since been heard from.

CASE III.—George B., of Mississippi, was admitted to Ward 25 October 23, 1879. Patient was about twenty years of age, and presented that peculiar white appearance almost pathognomonic of chronic Bright's disease. The urine was heavily charged with albumen, and casts in abundance were found to be present. In November I took charge of the case, though I saw no hopes of any ultimate good. General anasarca was found. Patient did not pass more than six or eight ounces of urine a day. Professor Elliott informed me that the usual cathartic and diuretic remedies had been tried in vain.

Patient commenced taking gtt. xx of tr. apocyni cannabini, and in a few days gtt. xxx were administered. The urine soon became abundant, a quart or more being passed daily. Fifteen or twenty watery discharges daily were passed from the bowels. In a few days the edema of face, arms, legs and feet disappeared; a small amount of ascites alone remained. Examination of the urine showed no diminution in quantity of albumen or casts. The dropsy never returned, though the patient's stomach refused to tolerate the drug after an emetic dose of it had been administered. On December 26, 1879, the patient was discharged. I learned subsequently that he died soon after reaching his home.

CASE IV.—Albuminuria, due to cirrhosis of liver. Joseph McC., aged forty-four, native of Louisiana, was admitted to Ward 25, in November, 1879. Urine scanty and highly colored; filled with albumen. No casts. Ascites and edema of legs to enormous extent were present. Gtt. xx of the apocynum cannabinum were administered at once. A marked improvement was visible next day. In ten days no trace of dropsy could be found. The albumen persisted, but no casts were ever found. In about ten days more every trace of albumen disappeared, but it made its reappearance in small quantities in about five days. The urine became very abundant. His bowels acted freely. The medicine was discontinued on four separate occasions, and with the invariable result of the reaccumulation of the dropsy. In every instance the dropsy was entirely removed in four days. Patient was discharged in December, with no dropsy and no albumen.

On February 25, 1880, he returned as dropsical as ever. On March 1, 1880, all anasarca had disappeared. The apocynum cannabinum was suspended on March 1, and patient was put on liquor potassii arsenitis gtt. v ter die. On March 9, no trace of dropsy or albumen being present, the patient was discharged. I was informed by some of his friends a short time ago that he has never had any recurrence of his trouble.

CASE V.—Wm. W., aged twenty-nine, native of Alabama, farmer, was admitted to Ward 22, January 23, 1880. Patient had lived in the Louisiana swamps for many years. His constitution was shattered by malarial fevers. His spleen was found to extend beyond the median line. On admission the patient presented general anasarca; great puffiness under the eyes; a pale, anemic appearance. From four to five ounces of urine were passed a day. Pulse was hard, showing thickness of arterial coats, but it was very weak. Patient stated that several years before he had caught a severe cold, which was followed by acute pain in the loins, and dropsy. The urine was found to be full of albumen and casts. Patient complained incessantly of pain in his head and loins. This being a well marked case of chronic Bright's disease, I determined to take copious notes.

January 24. Patient was put on tr. apocyni cannabini, gtt. xx ter die, and liquor potassii arsenitis gtt. v, cinchonidia sulphate gr. v, ter die. January 25, no change was observable, except three watery passages during the night. January 26, urine very copious, catharsis moderate. Patient says he feels greatly improved. The ascites, which was enormous, is considerably reduced.

January 27. Marked diminution in size; diaphoresis and diuresis most copious. Bowels only acted twice during twenty-four hours. Pain in loins greatly reduced; continues in his head. January 28, patient passed several quarts of urine in the past twenty-four hours; two passages from bowels. Reduction continues; no pain in back, little in head; appetite voracious. Patient steadily gaining strength.

January 29. One passage; urine very free. To-day the arsenic and cinchonidia were discontinued. On the 28th the medicine was vomited by patient; since then ten drops, thrice daily, have been taken. Complains of heartburn and pain in head and loins. Urine little above normal in quantity; skin dry and cold; three passages in twenty-four hours.

February 1. Complains of skin having been hot and dry last night; intense pain in head and loins.

February 2. Urine copious; three passages; patient feels well. The patient not having had a trace of dropsy for many days, his urine being nearly free of albumen and but few casts being found, his appetite being excellent and his general health being good, he was this day, at his urgent request, discharged.

On May 11, 1880, the patient returned and was sent to Ward 24. General anasarca, loss of appetite and general debility brought the patient again under my care. Albumen and casts were found as abundant as upon his first admission. Patient passed not more than five ounces of urine during twenty-four hours; skin was dry and bowels constipated.

May 12. Patient was given his old prescription of tinctura apocyni gtt. xx ter die, and in addition one dose of forty grains of compound powder of jalap.

May 13. Twenty-five watery passages during past twenty-four hours; urine improved; skin moist; no appetite. Patient continued to have on an average twenty-four operations a day to the 17th, when the medicine was discontinued for twelve hours. On this day but little dropsy was present; urine normal and appetite good.

June 24. Patient left without my consent. When he left his urine contained but little albumen, but plenty of casts. The patient was strong and vigorous looking.

July 24. Patient returned to Ward 24 in same condition as before. The apocynum cannabinum soon removed all dropsy and caused the skin and kidneys to act well.

October 22. The patient has had no return of dropsy for two months. His urine is steadily improving; some days a mere trace of albumen can be found, on other days it is quite abundant; all casts have disappeared. Patient takes gtt. v of the tincture of apocynum once a day.

CASE VI.—Mitral regurgitation of the heart. Thos. D., aged eighty, negro, was admitted to Ward 32, March 15, 1880. Twenty drops of the tincture were ordered three times a day. The medicine was discontinued after three days, as no results, either good or bad, were obtained. As the medicine did not act as a tonic, diuretic, diaphoretic, or cathartic, my opinion was that either the nurse failed to give the medicine or else the patient did not swallow it.

CASE VII.—Acute desquamative nephritis.

Charles T., laborer, aged thirty-five, was admitted to Ward 26, April 9, 1880. Puffy under eyes; great ascites; edema of feet and legs; urine abounding in albumen, epithelial casts, and fat globules. Ordered a turpentine stupe, free saline catharsis and tincture of digitalis. In a few days *tr. apocyni cannabini* was substituted for the tincture digitalis. Only one dose of sulphate of magnesium was given, and the turpentine stupe was removed as soon as it had reddened the parts slightly. The dropsy disappeared in a few days. In ten days every trace of albumen, casts and fat globules had disappeared. The nephritis in this case seems to have been due to great exposure to cold and dampness.

April 22, 1880. The patient was discharged strong and vigorous. He seemed cured. No tidings of him since.

CASE VIII.—Subacute nephritis. Patrick C., nurse in Ward 24 for a long time. He is still the nurse there. Patrick is sixty years of age. On April 16 he presented the following appearance: Enormous general anasarca of some months' standing. Urine loaded with albumen and casts and very scanty in amount. Suffered greatly from dyspnea. On the 16th he was put on *tr. apocyni cannabini* gtt. xx *ter die*. April 17, 18, 19 and 20, urine steadily increased in quantity, and diminished in albumen. Dyspnea relieved and appetite restored. Dropsy greatly reduced. On May 4 no trace of dropsy, albumen or casts was found, on a careful examination. I forgot to state that the attending physician prior to me had tried in vain to relieve the dropsy by means of compound jalap powder.

Since May 24 up to date (October 24) the patient has continued well. I believe him radically cured. Patient took gtt. v of the apocynum for a month after all signs of disease had disappeared.

CASE IX.—Chronic tubal nephritis. Harry A., aged twenty-eight; paperhanger. Admitted to Ward 24, April 16, 1880. Patient passed one pint of urine daily, thirty-five per cent. albumen, casts abundant. General anasarca present.

April 17 he was put on apocynum, gtt. xx *ter die*. April 18, no improvement. April 19, slight improvement. April 20, 21, 22, 30, marked but gradual improvement. May 4, no dropsy, casts, or albumen. May 8, a faint trace of albumen; no casts. May 10, slight trace of albumen. Patient steadily gained in looks and strength from the first few days.

May 11, patient left, against my judgment, believing himself cured.

The patient was readmitted to the same ward on September 16, 1880. On admission he was suffering from general anasarca and anemia. Patient only passed about half a pint of urine in twenty-four hours. Urine loaded with albumen; casts abundant. Patient suffered greatly from nausea, cephalalgia, and other uremic symptoms. Old treatment was at once instituted; in addition, infusion of juniper and bitartrate of potassium was given occasionally. In a few days patient's urine became notably increased and uremic symptoms disappeared. The dropsy has gradually diminished, but is still not entirely removed. The albumen and casts have not diminished much up to date (October 29).

CASE X.—Enormous ascites due to cirrhosis of liver. No edema in upper or lower extremities. J. H. D., aged forty-two, farmer, was admitted to Ward 24, bed 359, May 11, 1880. Neither casts nor albumen were found in the urine. Patient was at once put on the apocynum. An occasional dose of compound jalap powder was administered. The patient upon admission stated that he had been confined to bed for several months by extreme debility. The ascites gradually disappeared. June 15, no ascites, patient was strong enough to walk about, having evidently gained greatly in flesh and strength since his admission. August 1, patient had a profuse hemorrhage, and sunk at once into a state of coma, and died the next day.

CASE XI.—Aneurism of ascending part of aorta. Carl W., aged fifty-six; came from Pensacola, and was admitted to Ward 24 on May 13, 1880. Upon admission patient was suffering greatly from dyspnea. He said he had "asthma," and had been treated for it in vain. His hydrothorax being excessive prevented my making a positive diagnosis at once; edema of legs and feet was quite marked also. Upon admission patient was unable to sleep without great uneasiness; appetite was bad. *Tr. apocyni* was administered in the usual dose; occasionally a jalap powder was given.

I forgot to state that the apex beat of the heart was one and a half inches to the left of the left nipple. It was also much higher up than normal. Hydrothorax of right side was greater than that of the left side. May 19, no dyspnea. Patient enjoys sleep and food. But little edema of lower extremities; hydrothorax much improved. May 29, all

dropsy gone; both lungs filled well; apex beat of heart in its normal place. Patient's appetite became voracious. He stated that his sexual passions were greatly excited. June 2, patient was discharged, having gained in flesh and strength greatly.

CASE XII.—Mitral regurgitation. George C., aged forty-six, sailor, from Algiers, La., was admitted to Ward 24, bed 362, May 30, 1880. As soon as I saw the patient I advised him to go home to his family. I was satisfied after my examination that a few months or weeks would put an end to his suffering. As the patient insisted on being admitted, I ordered tincture of digitalis. Next day I ordered the tincture of apocynum and compound jalap powders. June 3, patient's stomach was too weak for either food or medicine—great dyspnea and anorexia. June 5, fifteen drops of digitalis was ordered three times a day. June 6, stomach being settled, the apocynum in ten-drop doses was again ordered; 7th, 8th, 9th, 10th, considerable improvement; dyspnea all gone. For the first time for weeks the patient was able to sleep lying down; 11th, 12th, dropsy disappearing quite rapidly, but the irritable stomach prevents pushing the remedy.

June 13. Acute inflammatory rheumatism set in. The apocynum was discontinued, and salicylic acid in large doses substituted. June 18, rheumatism greatly improved. No reaccumulation of water since the apocynum was discontinued. Patient sleeps and eats well. July 24, patient left, having a trace of edema in the feet and legs only. I heard he died a few weeks afterwards.

CASE XIII.—Mitral obstruction. Willie, aged seven; transferred from Ward 18 to Ward 24 on June 8, 1880. Upon admission patient could scarcely breathe on account of the enormous ascites; edema of lower extremities great. Deeming the patient past all hope, I hesitated in prescribing. I, however, ordered one dose of five drops of the apocynum. Next morning the little boy died.

CASE XIV.—Mitral regurgitation. Wm. G., aged forty-five; admitted to Ward 16 on May 3, transferred to Ward 24 June 8. Great ascites and edema of lower extremities; dyspnea so great as to prevent the recumbent posture; patient had not lain down for three months. June 19, patient was discharged, free from all dropsy and feeling in fine spirits. A few pills of elaterium were administered during the first few days. The apocynum was used throughout. Patient was recommended to take five drops of the

tincture of apocynum three times a day to regulate the heart's action, and to prevent the reaccumulation of the dropsy. He did not follow my advice, so he was readmitted to Ward 24 on October 22, 1880. Since his readmission up to date (October 30) I have not used apocynum, but have kept him on elaterium and compound jalap powders. To-day the dropsy shows but little diminution, although the remedies produce free catharsis. In a few days I will try the apocynum, and I feel sure he will be entirely relieved in a few days.

CASE XV.—Christian W., aged thirty; Swiss; cook; diagnosis, chronic nephritis. Patient had been in the Charity Hospital before; also in the Nashville Hospital. His attending physicians in both institutions pronounced his case one of chronic Bright's disease. Patient was admitted to Ward 24, bed 352, June 30, 1880. Upon admission he was suffering from general anasarca; albumen and casts in abundance were found in his urine; urine scant. Ordered apocynum three times a day; also an occasional jalap powder. July 16, no anasarca; urine much increased, but casts and albumen still present. Patient's general health apparently fine; complains of erethism. July 23, no reaccumulation; urine not examined for albumen or casts since the 16th. Patient left unexpectedly to go to work. A friend of his informed me a few days ago that he continues well.

CASE XVI.—Chronic nephritis, accompanied by great anasarca. E. W. T., aged thirty-five, native of New Orleans, clerk, was admitted July 27 to Ward 24, bed 357. Urine contained forty per cent. albumen; specific gravity 1014. Under microscope granular, epithelial and hyaline casts were found in abundance; about twelve ounces of urine passed in twenty-four hours.

October 30. Patient's urine very copious; several quarts during the day; only a trace of albumen present; casts difficult to find; a slight ascites still persists. Within the past few days infusion of juniper and bitartrate of potash have been used as adjuvants to the apocynum, which has been used from the beginning; occasional doses of jalap were administered. The patient is still under treatment.

It will be evident to all from the above cases that in the removal of dropsical effusions I have not confined myself to any one remedy, but that I place the apocynum far above all other hydragogues, especially



in Bright's disease. I have not pretended to state that the apocynum exercises any specific action in Bright's disease, but it is worthy of notice that in almost every instance where it was administered in that affection marked diminution of albumen and casts occurred; and in some instances every trace of both disappeared. Whether or not this remedy exerts any peculiar influence over Bright's disease, clinical facts do not allow us to state positively. The following advantages, however, possessed by the apocynum should commend it to all physicians:

1. The small quantity necessary to produce free diuresis, emesis, or catharsis.
2. Its pleasant, aromatic taste.
3. Its fine tonic properties, which compensate for the depression consequent on free catharsis.
4. Its harmlessness—an overdose being speedily followed by free emesis.

With this remedy at our command, I conscientiously believe paracentesis to be, in most cases, unnecessary.

*Physiological Action.*—Dr. J. Rose Bradford has conducted a series of experiments to ascertain the physiological action of apocynum. Its principal action has been found to be on the heart. The heart of the dog was slowed down to two beats to one respiration, and even as low as three beats to two respirations. It will thus be seen that it is far more powerful than digitalis. No such results have ever been obtained experimentally from the use of digitalis, for the vagus becomes paralyzed before this point is reached. Apocynum strengthens the heart and increases its tone, so that it stops the heart of the frog in systole. In mammals the heart is stopped in diastole, though a massive dose may stop it in systole. Clinically it has been found to regulate in a marked manner the action of the irregular heart, but it *does not* slow the normal heart. It will be seen that it very closely resembles the action of strophanthus—itself one of the Apocynaceæ—digitalis, adonidin, caffeine, and sparteine, but it is the most powerful of the group. Its action on the arteries differs from that of digitalis, as is shown by changes in the blood-pressure. It causes no contraction of the arteries, hence no increase in blood-pressure. It therefore resembles strophanthus rather than digitalis in this respect.

Experiments carried on by Dr. Ringer, in University College Hospital, Cambridge, England, and quoted by Mr. Murray, sub-

stantially confirm the above. Dr. Sokoloff's investigations into the biological action of this drug, made in the clinical laboratory of Prof. S. P. Botkin, St. Petersburg, showed slowing of heart's action, enlargement of pulse wave, and *marked rise of blood-pressure*. It is not stated whether Dr. Sokoloff's experiments were made with the heart in a physiological or pathological state. Dr. Ringer's experiments were all conducted in the hospital and on patients suffering from cardiac disease.

According to experiments conducted by Petteruti and Somma (*Il Policlinico*, Nos. 10 to 14, May to July, 1894), far different results were obtained when the decoction was used instead of the tincture. The decoction seemed to act mainly on the stomach and intestines, promoting catharsis and emesis. When emeto-cathartic action was delayed, decided action on heart was noted and a resultant increased diuresis and acceleration of heart beat. The tincture was found to be free from gastro-intestinal irritant effects even when given in large doses.

Apocynein being soluble in boiling water and insoluble in dilute alcohol probably accounts for the nauseating effect of the decoction. Apocynin, on the other hand, is insoluble in boiling water, but soluble in alcohol. These authors claim: "A marked effect of the tincture is the production of diuresis, which is never accompanied with albuminuria; when albumen has been present, it has disappeared after a course of the tincture." This statement but confirms the same point made in my paper published in 1880.

It will be seen, then, that the two alkaloids isolated in 1883 by Schmiedeberg have different properties. It can now be stated as a fact that apocynum acts as a diuretic through its cardio-kinetic action and not by irritation of renal epithelium—a view claimed in my original paper.

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#### THE USE OF SERUM-THERAPY IN POISONING BY MUSHROOMS.

*La Presse Médicale* of June 22, 1898, records the use by CLAISSE of serum-therapy in mushroom poisoning. He points out that the subcutaneous injection, as in ordinary hypodermoclysis, does much to relieve the characteristic symptoms of collapse or nausea, particularly if they are choleraic in type. In pressing cases intravenous injections may be given with advantage.

# The Therapeutic Gazette

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## Leading Articles.

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### THE OPERATIVE TREATMENT OF INTESTINAL PERFORATION IN TYPHOID FEVER.

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This subject is one which interests the physician and the surgeon to an equal degree and deserves careful study by both, since in some cases life can be saved by prompt action.

There are no more interesting studies in medicine and surgery than those advances which meet conditions heretofore considered beyond relief, and there are few conditions more terrifying to the physician and to the patient's friends than perforation of the bowel in typhoid fever. Theoretically, at least, it would seem that with the progress which has been made in abdominal surgery operative interference is beyond all doubt the chief possibility for the recovery of the patient, yet as a rule both physicians and surgeons have in the past felt timid about resorting to so grave a surgical procedure in the face of the profound exhaustion of the patient from disease. In this connection the statistics which have been recently collected and published by Keen give us clearer ideas of our duty under these

circumstances than any others with which we are acquainted. One of the first points impressed upon us by these statistics is that delay is an exceedingly dangerous thing. Thus, as Keen points out, of the sixty patients operated on for perforation in typhoid fever, 26.7 per cent. recovered when the operation was done within twelve hours; whereas the mortality was total when as long as twenty-four hours had elapsed, except in three instances, in one of which the operation was done twenty-six hours after perforation and the other two between two and three days. As a result of these statistics Keen enunciates the law that if operation is not done within about twenty-four hours after the perforation there is practically no hope of recovery.

It is stated in *La Presse Médicale* of May 18, 1898, that Guecehewitsch and Wanach have recorded five instances in which Russian surgeons have operated for intestinal perforation. In 1891 Netschaieff and Troianoff operated upon a man aged thirty-one years, who presented signs of perforation. The operation was practised six hours after the entrance of the patient into the hospital. Marked evidences of serous peritonitis were found and fecal matter was in the peritoneal cavity. Resection of the perforated portion was performed. Death followed and autopsy revealed typhoid ulcers in the ileum. In 1893 the same authors operated upon a man of twenty-eight years, who presented similar symptoms. On entering the hospital a diagnosis of the ambulatory form of typhoid fever was made, with intestinal perforation. The operation took place seventeen hours after entrance. A general sero-purulent peritonitis was found, the fluid being filled with fibrinous flakes. Quite a large perforation was present; four centimeters of the intestine was excised. The abdominal wall was not immediately sutured, but the opening in it was packed with sterile gauze, and complete recovery followed.

A third case was that of Kohltzoff and occurred in a man of twenty-four years who had typhoid fever and congestion of the lungs. He had symptoms of perforation with excessive fever. The operation was performed four hours after the perforation. Sero-sanguinolent fluid was found in the peritoneal cavity, and twenty centimeters from the ileocecal valve there was a perforation. A resection of the perforated portion of the intestine was performed. Death occurred in two days. At the autopsy nu-

merous typhoid ulcers were found near the point of ulceration.

In the fourth case, belonging to Troianoff, a patient twenty-nine years of age had been sick for fifteen days with fever. He was seized with violent pain in the belly followed by intense chills, vomiting, and hiccough. There was abdominal swelling and general pain. The symptoms were those of perforative peritonitis. The operation began sixteen hours after the accident. Abundant seropurulent fluid was found in the abdominal cavity and perforation of the intestine had occurred ten centimeters from the ileocaecal valve. Resection of the perforated segment was performed and death occurred fourteen hours afterwards. The autopsy revealed typhoid ulcers in the ileum.

In addition to these cases Guecehewitsch and Wanach report five more. The first of these was a man thirty-six years of age, who had had typhoid fever fifteen days. After eight days he had had bloody stools, violent pain in the belly followed by intense chills, vomiting, and hiccough. The belly was swollen and the pain was general. The pulse was 120, the temperature febrile. An operation was performed two hours after the perforation. On exploring the intestines two perforations were found, one two centimeters in diameter, the other much smaller. Twenty centimeters of the intestine was resected, and death followed in about two hours. At the autopsy ten ounces of fetid pus was found in the belly. The parietal and visceral peritoneum were covered with punctiform hemorrhages. The part of the intestine resected was thirty-seven centimeters from the cæcum. Their second case was a man of twenty-four years who had been ill some time with typical typhoid fever. Seven days after entrance into the hospital he was seized with violent chills and fever, and all the symptoms of perforative peritonitis. The operation was done seventeen hours after the accident, ether being given after a preliminary injection of cocaine. Perforation of the intestine was found. The mesenteric glands were enlarged and were adherent to the intestine in places. Thirty centimeters of the intestine was resected. Death occurred in six hours after the operation. The autopsy revealed profound typhoid ulceration at the lower extremity of the ileum. There were also signs of catarrhal pneumonia. The third case was in a young man of nineteen, who had been sick five days. His fever was high and he had bloody stools. Four weeks after

his entrance into the hospital he had perforation of the intestine. His condition remained grave, and on opening the peritoneal cavity it was found to be filled with bloody fluid and there were intestinal adhesions. Death occurred in three days. Again the autopsy revealed perforation and ulceration. A man of twenty-seven presented mild symptoms of typhoid fever. Six days after his entrance he was seized with violent pain in the belly and with chills and sweating. There was also meteorism. Twenty-four hours after these symptoms the operation was performed. Again the belly was found filled with seropurulent fluid. Thirty centimeters of the intestine was removed and contained four ulcers. Notwithstanding injections of saline solution the patient died eight hours after operation. Again the autopsy confirmed the diagnosis. In the fifth case a man of twenty-nine entered on the seventh day of typhoid fever; six days later violent pain in the cæcal region came on with moderate fever. Surgical intervention took place thirteen hours after the accident. The abdominal cavity was filled with serous fluid. The walls of the intestine were edematous. Resection was performed. Death occurred in three days. The autopsy revealed the characteristic lesions and pneumonia of both bases of the lungs. Altogether these authors quote seventy-one instances of perforation in the course of typhoid fever, with seventeen recoveries. The number of deaths in operation for perforative peritonitis in typhoid is necessarily high.

In regard to the time for intervention it is evident that much depends upon the promptness with which the surgeon proceeds to the relief of his patient, and it would seem that good results are apt to follow only in those cases in which the intervention is immediate or where Nature has protected the peritoneum by inflammatory exudations which cause a limited peritonitis. In regard to the anesthetics which may be used in these cases, these two Russian surgeons believe that either chloroform or ether is satisfactory, provided the myocardium, the lungs, the kidneys, the liver, are in fair condition. In other instances they think that mixed anesthesia is well. They produce local anesthesia by cocaine and find that smaller doses of chloroform and ether are needed under these circumstances. Washing out of the peritoneal cavity in these cases is of the greatest possible importance, normal saline solution being employed.

### THYROID THERAPY.

It is not our intention in this editorial to discuss the good effects in myxedema and cretinism which follow the use of thyroid gland, but rather to consider the physiological action of the remedy in order to make its use less empirical and more rational. However certain may be the results obtained in disease by remedies of a given type, it is always necessary to determine more or less rapidly the exact method of their action, and when this is done it is sometimes found that they possess properties of still greater power in maladies in which heretofore they have not been tried.

In this connection a summary recently prepared by Robert Hutchinson and published in the *British Medical Journal* of July 16, 1898, is of interest, for his paper embodies a digest of what has been learned experimentally in connection with the effects of the thyroid. It has been found by a number of investigators that the use of this gland internally greatly increases the elimination of nitrogen, or in other words, that it hastens tissue waste in the proteid portions of the body, as for example the muscles. It is also a fact that under its effects a greater amount of oxygen is taken in and a somewhat less, but still increased, quantity of CO<sub>2</sub> given out. Which indicates that the gland causes a greater combustion of body fat, since the loss of body weight is greater than can be accounted for by the increased elimination of nitrogen. In other words, under the effect of the thyroid there is an increased rapidity of combustion throughout the body, while the increased urinary flow which follows its use decreases the patient's weight considerably as well. These scientific facts bring us face to face with the important question as to the real value of the thyroid in the treatment of obesity, for if it would decrease the patient's weight by eliminating fluid and burning up fat, and not at the same time cause the breaking down of muscular tissue, its value as an antifat preparation would be very great. This, however, is not the case, as we have already pointed out, and the practical lesson to be learned is that when treating obese patients by this remedy we should give them an increased amount of proteid foodstuffs to compensate for the nitrogenous breakdown associated with the loss of fat.

Another important effect of the thyroid gland is to hasten cell activity. Under its influence the life history of a cell is carried

quickly to its completion, and this may be one of the ways in which it does good in those diseases, like myxedema and cretinism, in which cell life is so slow that the cells never reach maturity in all its completeness.

Not only does this gland exercise the effects already named, but it also seems to prevent the body from utilizing all the fat-forming material which may be ingested. Thus if glucose is given in the dose of 100 grammes to a healthy man, it will not cause glycosuria, whereas if thyroid gland is given this amount of glucose cannot be used by the economy and glycosuria takes place (Bettmann). Upon the circulation the effect of thyroid gland is interesting. The blood-pressure is not directly influenced by it through the vasomotor apparatus, the slight fall which sometimes ensues being due to a depression of the activity of the heart. Upon the blood the effects vary. If the patient be in health the use of moderate amounts of thyroid gland produces no effect; if it is given in excess the blood cells are destroyed; but if it is given to a myxedematous patient the cells are greatly increased.

The process of its elimination, when thyroid is given, is slow.

### IRON AND OPIUM IN BRIGHT'S DISEASE.

These two drugs have been highly lauded by many writers in the treatment of patients suffering from Bright's disease, and it has been common for physicians to be carried away by empiricism to such an extent as to administer iron to all cases of Bright's disease, whether the condition of the blood indicated marked anemia or not. Further than this, iron has been given in quantities so large that even the healthy emunctories of the normal individual would be unable to handle it, not to speak of the impaired vital processes of one whose system is undermined by chronic nephritis. It has seemed as if in the wild desire to find something to relieve an incurable disease physicians had come to pour into their patients Basham's mixture, for example, because they could think of nothing else to administer.

In this connection an interesting article has recently been published by Dr. James Tyson, of Philadelphia, in the *Journal of the American Medical Association*, in which he well points out that iron has no specific curative effect in Bright's disease, and furthermore that it is often harmful by locking up secre-

tion and checking elimination. He even goes so far as to tell us that Basham's mixture, or iron in any form, may in his opinion even precipitate uremic symptoms. He also enunciates the view that iron is contraindicated in all cases of acute Bright's disease, and that chronic interstitial nephritis is a malady in which the remedy in the vast majority of cases does harm rather than good. There is only one form of Bright's disease in which iron can be administered, namely, chronic parenchymatous nephritis, and even here it is to be administered with caution and small doses are to be given rather than large ones. Whenever the iron appears in the stools, showing that a considerable portion of it is unabsorbed, it is doing no good and probably harm, and the dose should be cut down or the remedy entirely withheld.

In regard to the question whether Basham's mixture is actually a diuretic, Tyson lends the weight of his opinion towards the side that indicates that this is an error. Indeed, he thinks that the bulk of water which is sometimes taken in Basham's mixture aids in the diuresis more than the iron which it contains, or at least the other ingredients increase the urinary flow.

These opinions, we may state, are entirely in accord with our own. We have never seen any rational statement as to why Basham's mixture should be poured into the throats of patients suffering from renal disease in the universal manner in which it is given, and we would urge upon practitioners the necessity of limiting its administration to that class of patients who seem to have comparatively slight renal lesions with an anemia which is out of proportion in its severity to the kidney trouble.

In regard to the use of opium in renal disease it may be stated that we here come in contact with a method of treatment which is not so commonly resorted to as is the use of iron, and yet which physicians largely employ, probably as the result of the high praise accorded to the action of opium in the treatment of uremia by the late Dr. Loomis, but, as Tyson points out, Loomis' views on this question have been much misrepresented, as may be seen on reading the item in the Progress columns dealing with this matter. Thus Loomis recommended injections of morphine for the uremia of acute nephritis, yet physicians in general have believed that he advised its use for all kinds of uremic convulsions.

Against the view that opium is useful in any form of uremic trouble Tyson makes a

stand, and while he does not condemn its use absolutely, he believes that opium is useful in a very limited class of patients, so limited that it is wise for the general practitioner to make a rule never to give it. Here, again, we think Dr. Tyson has done the profession and its patients a service in pointing out therapeutic errors into which many of us have gradually drifted.

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#### SOME RECENT IMPROVEMENTS IN ASEPTIC TECHNIQUE.

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In the sixty-seventh volume of the *Archives of Clinical Surgery*, second half, are found some able papers upon asepsis, the most important, thorough and immediately practical being that of Mikulicz, who after a brief review of the changes in method which have taken place since the time of Lister, and some words of commendation of the aseptic method as elaborated by Bergmann and made more or less practicable by the ingenious devices of Schimmelbusch, advances the opinion that the results, so far as the assurance of healing of all wounds is concerned, are yet so unsatisfactory as to render imperative careful attention to the minutest details of operative preparation, and a painstaking revision of them for the purpose of abolishing sources of infection commonly unrecognized or neglected.

As to the absolute sterilization of dressing material, this, of course, can be accomplished by heating. There is, however, no generally adopted method by which the surgeon can know with absolute certainty that the dressing which is handed to him has been subjected to a sufficient degree of heat to accomplish such sterilization. In a well managed clinic errors on this point are not likely to occur. Still, it is always possible that they may. As a means of enabling the surgeon to be positive on this point Mikulicz suggests the following: A strip of unsized paper is marked with the word "sterilize" and is then painted over with a three-per-cent. starch paste. When half dry it is again painted with a potassium iodide solution, made by adding one part of iodine and two parts of potassium iodide to one hundred parts of water. The strip at once becomes of such a dark blue color that the writing is completely concealed. In hot steam this dark blue color disappears, or at least to an extent sufficient to enable the writing to become distinct. Dry heat will not accom-

plish this result. Under pressure in an apparatus in which the steam is raised to a temperature of  $106^{\circ}$  C. the strips which are hanging free are decolorized in ten minutes; those which are placed in the middle of a dressing not for twenty minutes or over. If the temperature is less than  $100^{\circ}$  C., more than an hour is required for the decolorization. The strip of paper thus prepared and placed in the center of a dressing proves positively that the dressing has been subjected to hot steam and not hot air, that the steam has been sufficiently hot for thorough sterilization, and that it has operated for a sufficient length of time. Experimental research has shown that even the most resistant bacteria are destroyed before decolorization of paper thus prepared.

As to the sterilization of sutures and ligatures, the present methods are absolutely satisfactory. The main points to be considered at present are as to the advisability of impregnating catgut with some material such as iodoform which inhibits germ growth, and the choice of a method of sterilization which renders the gut strong and easy to handle. Mikulicz prefers the Hoffmeister catgut, and states that he is in every respect content with it, that he never noted suppuration which could be traced to its use. It should be noted that according to Poppert, both catgut and buried silk sutures may occasion sterile suppuration. Hoffmeister's method is described by Vinberg (*American Gynecological and Obstetrical Journal*, June, 1897) as follows:

The gut is first immersed in a solution of formalin of from two to four per cent. according to the size, and allowed to remain in this solution for a period of from twelve to forty-eight hours. The formalin is then removed by washing in running water for twelve hours. It is then boiled in water for fifteen minutes, after which it is transferred to a vessel containing alcohol, where it may be kept until required for use. Carbolic acid in the proportion of two to four per cent. is added to the alcohol and makes the gut more firm, but it should be removed to plain alcohol some time before using. The secret of success in this method of preparation is to keep the gut in a high state of tension until after it has been boiled. Hoffmeister recommends that the gut be rolled tightly on glass; and Lange, of New York, has devised a small steel frame for this purpose.

The instruments are satisfactorily prepared by boiling in soda solution.

Infection, difficult or sometimes impossible to avoid, may arise from three other sources, namely, the air, the skin of the operative area, or the hands of the surgeon or his assistants.

The importance of air infection, at first greatly exaggerated, has latterly been too much neglected. It is true that the bacterial forms found in the air are most of them non-pathogenic and are of minor importance, excepting in and about hospitals where there may be large numbers of pathogenic micro-organisms floating about. This is particularly true of large lecture halls, where the ratio is markedly increased by the coming and going either of students or assistants. In small operative rooms the ordinary methods of cleaning and preparing are practically efficient, but to prevent the bringing in of bacteria by outsiders it is requisite that each should be covered with a perfectly clean mantle, and, a matter of greater importance, that each should put on rubber shoes, which have been previously cleansed and placed on a surface moist with sublimate. This is especially important in the case of medical students coming as they do from the dissecting rooms, pathological departments, and hospital wards, and bringing in on their shoes enormous numbers of virulent bacteria.

A much more important source of infection than that from the air of a room is that from the mouths of the operator and his assistants. It is sufficiently proven that in the mouths of perfectly healthy people pathogenic bacteria are found and these bacteria are virulent. Of forty-eight healthy persons examined, in one-third were found virulent yellow pus staphylococci. In the mouths of those suffering from ordinary sore throat, streptococci were found thirty times in forty investigations; staphylococci seventeen times. The majority of these micro-organisms were virulent. It is noteworthy that not only are the number and variety of the mouth organisms markedly increased by slight pathogenic processes such as sore throat, but also their virulence is greatly augmented.

In ordinary talking these bacteria are carried from the mouth in sufficient quantities to produce infection, whilst in clearing the throat, coughing, or sneezing, they are projected for the same distance in enormous quantities. Hence it is evident that some means must be taken to prevent these bacteria reaching the open surface of a wound, and this is particularly important when the surgeon has any inflammatory condition of his mouth or nostrils.

This protection is afforded by a double layer of gauze bound about the mouth and nose, or better, by a mask in the form of a chloroform mask, so fastened that breathing is easy. Investigation has shown that such a mask absolutely prevents the escape of bacteria while the surgeon is breathing ordinarily or talking, but that in clearing the throat or coughing it does not provide an absolute protection, whilst in sneezing the protective worth of the mask is extremely slight. Mikulicz has used such a mask for six months and states that he is so accustomed to it as to wear it without inconvenience.

Thus, by thorough previous cleansing of a room which has been specially devised for operations, by clothing all who come in and go out of that room with sterilized garments and putting on them rubber shoes, and by placing on the surgeon and his assistants gauze masks which prevent infection from the mouth, the possibility of infection from the air is reduced to a minimum.

The disinfection of the skin covering the wound area is a more difficult matter. It is proven beyond controversy that none of the disinfection methods are able to destroy the germs lying in the deeper layers of the skin. Alcohol and sublimate are somewhat more potent than carbolic acid and sublimate, but both fail in about fifty per cent. of cases. The important point, so far as infection of the wound is concerned, is, however, superficial disinfection. This is best accomplished by the thorough use of soap and water before the employment of alcohol and bichloride. Because of the impossibility of sterilizing the deeper layers of the skin it is important to keep the superficial layers protected so that they may not be rubbed off and thus expose the hands of the surgeon, the compresses and the instruments to infection. If the skin is affected with eczema or acne, or has developed in its substance pustules, operation should be postponed if possible. If not, Mikulicz first cuts through the skin and superficial fascia, then secures by means of long sharp tooth forceps a slit compress to the edge of the wound, not including the skin.

Although the stitching of healthy skin but slightly endangers infection of the wound during operation, it may occasion infection during healing by the medium of the stitch canal. Many stitch abscesses are caused by bacteria lying in the deeper parts of the epidermis. When the stitches are deep the infection may thus be carried to the depth of

the wound. The danger of these abscesses is lessened by using very fine suture material and by not placing tension upon the stitches. Where tension sutures are required they should always be buried beneath the skin and a fine, loose, accurate running stitch should be used for superficial closure. Examination of the stitches removed at the time of the first dressing, usually in from four to eleven days, showed that very few were entirely sterile. *Staphylococcus albus* was usually present; in about twenty per cent. of the cases it was combined with the *aureus*. In the secretion of a few stitch abscesses no micro-organisms were found, and there were many cases of primary healing in which both the *albus* and *aureus* were found in the silk removed. There was one case of severe infection caused by the *albus*.

Drainage distinctly increases the danger of infection from the skin, and this danger can only be avoided by doing without draining. Since the bacteria of the deeper skin layers cannot be destroyed, Mikulicz advises the impregnation of suture material with an inhibiting agent, preferring for this purpose iodoform. Immediately before the operation he lightly paints the skin of the operative area with a tincture of iodine, holding that this agent exerts a protracted inhibiting force upon the skin bacteria, and finally, after closure of the wound, he covers it with zinc paste, thus preventing entrance of bacteria from without.

The sterilization of the hands is the most difficult problem of all. The most thorough and elaborate procedures have proven inefficient. Moreover, investigations show that individuals vary greatly as to their ability to cleanse their hands, some with apparent ease and in a short time approaching a degree of sterility which others seem quite incapable of reaching after prolonged efforts, and this to a certain extent was independent of the previous degree of infection of the hands, though it was noteworthy that in those who had to do with the operating upon and dressing of septic cases virulent pathogenic germs were always found.

Although it is true that in perhaps a large percentage of cases before the operation the hands may be superficially freed of germs, this does not last long. During the course of the operation the germs which lie in the deeper skin layers reach the surface in increasing numbers. Thus it follows that the danger of infection of a wound from the hands is greater in proportion to the length of the

operation, and hence some form of sterile covering to the hands is indicated. This protection is provided by sterile gloves, but not completely. Experimental research has shown that during the course of an operation the germs from the skin of the hand will pass through these gloves. None the less, the percentage of successes in surgery was markedly increased in Mikulicz's practise by the use of gloves, having risen from eighty-three to ninety-four per cent. He holds that generally the wound is infected by the finger points and the nails. To lessen the danger from these sources he paints around the nails and beneath them pure tincture of iodine, then dips the finger ends in the same solution. After that he washes his hands in lysol and then puts on his gloves. This application does no harm to the fingers. In long operations the gloves should be frequently changed. This is especially true in operations in which they become soaked with blood.

As a rule wounds should be closed without drainage, or there will result in about ten per cent. of the cases hematomata, which either have to be aspirated or are absorbed very slowly. If this formation is likely to occur, drainage should be continued for twenty-four hours; cases of thyroid extirpation are always drained for this length of time by Mikulicz.

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## Reports on Therapeutic Progress

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### ULCERATION OF THE STOMACH.

DUNCAN, in the *Intercolonial Medical Journal of Australasia* of March 20, 1898, says that in France, at least, this malady is receiving a great deal of surgical attention. M. Hartmann, at a late meeting of the Société de Chirurgie, gave his experience of the treatment of this grave malady by operative measures. The symptom chiefly calling for operation was the presence of grave hematemesis. The results quoted are not encouraging, since in a series of twelve operations no less than eight fatalities occurred. The operation adopted is that of gastro-enterostomy, an operation which at first sight seems scarcely calculated to attain the end in view. It is claimed, however, that the operation gives repose to the stomach, and lessens or does away with contraction of the pylorus, two conditions which favorably influence the ulcerative process. M. Hartmann has also adopted the same measure with success in a grave form of dyspepsia, with pyloric spasm,

pain, and vomiting. So far as the spasm is concerned, he holds that it is benefited, whether it may be due to an ulcer, or to hyperchlorhydria, or anachlorhydria. He prefers an anterior gastro-enterostomy, and insists on the importance of fixing the bowel over a large extent of the anterior surface, so as to avoid a spur. It is in addition fixed obliquely from below upwards, and from left to right. He discards any form of anastomotic button. He first of all makes a double suture with silk (*en surget*). The first suturing includes all the tunics of the stomach and intestine, and is hemostatic. The second suture is sero-muscular, and covers the first.

In the discussion which followed, M. Routier related the case of a patient whom he had had under observation for a time. The patient was aged forty-five years, and had been the subject of grave dyspeptic troubles for a considerable period, with extreme pain and vomiting. He had thought of both ulceration and cancer in connection with the case, but as the patient continued to live, he found it difficult to conclude what was really the matter. Gastro-enterostomy was finally performed in May, 1897, and singularly enough no observable lesion whatever was detected. The gastro-enterostomy was made posteriorly with Murphy's button. Since then the patient's health has continued excellent, and all his symptoms have quite disappeared.

M. Tuffier raised the question of the diagnosis between ulcer and erosion in cases of grave hemorrhage from the stomach. He considered that clinically it was impossible to differentiate the two conditions. During an operation the ulcer could, of course, be felt, but an erosion would only be seen during an autopsy. He preferred to do the operation posteriorly, as the anterior method involved a risk of too much flexion of the intestine, unless the union was made over a considerable extent. One objection to posterior gastro-enterostomy was that a breach was made at the level of the meso-colon, which might ultimately allow strangulation of intestine to take place. But if care was taken to accurately close the opening that objection was done away with.

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### PUERPERAL ECLAMPSIA.

On this never-ceasing topic of interest T. G. STEVENS writes in the London *Lancet* of May 14, 1898. After considering the causes, prognosis and autopsy findings in eclamptic cases he proceeds to describe his



plan of treatment. This is based on the assumption of the toxemic theory and may be divided into two categories: first, the treatment of the cause of the disease, and secondly, the treatment of the convulsions themselves. The first, of course, is the more important, and briefly put, consists in aiding Nature as far as possible to eliminate the poisonous toxic principles from the body. The usual avenues for the elimination of excretions are the skin, the kidneys, and the bowels. We can stimulate either of these to increased action, and if the kidneys are inadequate the extra action of the other two may be made to compensate somewhat. To stimulate the skin and to promote diaphoresis we use the hot bath at 100° F., or the hot vapor or air bath, or the hot wet pack. The author need not go into the question of how to use these. He does not believe in drugs to induce sweating, and especially *not* pilocarpine. It is a dangerous drug to use in these cases on account of its depressing action on the heart and the danger of asphyxia from the large amount of bronchial mucus it produces. Drugs by the mouth, of course, are contraindicated because the patient is usually unconscious. As the urine is unusually scanty, and the kidneys are probably deeply congested, active measures must be taken to relieve these. An old-fashioned but very efficacious remedy is dry cupping to the loins, followed by linseed-meal poultices. Infusion of salt water (one drachm to the pint) into the veins or subcutaneous tissue is very useful in promoting diuresis.

In many of these cases the temperature is at very high tension, as shown by plethora and the very hard pulse; this condition by itself greatly embarrasses the action of the kidney (or possibly the inadequate kidney really produces it), and the author is confident that for such a condition there is nothing to compare with bleeding. It acts by relieving the circulation and lowering the tension, by diminishing the congestion of the kidneys, and very probably also by removing some of the toxic principles from the blood. The quantity of blood removed should not exceed twenty ounces. He has twice used bleeding in typical cases, and both times the result was all that could be desired; the pulse became slower and the tension was relieved, and the fits stopped entirely and did not recur. Bleeding must not be employed when the patient is anemic or when the circulation is feeble. The time-honored treatment for

the bowels is to give two minims of croton oil, but the author is bound to say that this does not always have any effect. Any drug which can be given to an unconscious patient and which will produce a liquid motion may be used and will help to relieve the circulation.

With regard to the treatment of the convulsions the patient must be prevented from hurting herself through falling out of bed or biting her tongue. Chloroform must be given by inhalation, and light anesthesia may be continued for hours, increasing the dose if it seems to be coming on. As an alternative to chloroform morphine has been largely used of late years at the Rotunda Hospital, Dublin. It is given hypodermically in full doses until the full effect is reached, and it is claimed that the results have been better since chloroform has been abolished. There need be no fear of giving morphine on account of the renal complication. It does not seem to matter whether the kidneys are sound or not; indeed, morphine is largely given nowadays in chronic Bright's disease. Besides these bromide of potassium is generally given with or without chloral hydrate by the rectum—from thirty to sixty grains of the former and thirty grains of the latter—but very little good could be expected from them alone. His own experience of these drugs is limited to chloroform, but his cases are too few and too uniformly happy in their ending for him to be able to say much about it.

To the author's mind there can be no doubt that labor should be induced where eclampsia precedes. He is convinced that nothing gives the mother a better chance of recovery than a rapid but safe and deliberate delivery. No forced delivery should be attempted, the greatest care must be taken not to produce tears, and above all, the strictest antiseptic precautions must be taken; for a patient recovering from eclampsia is in the worst possible condition for withstanding septic microbes, and therefore is more prone to septicemia than other presumably less worn-out patients. Nothing could be more miserable than to pull a patient through an attack of eclampsia only to see her succumb to the ubiquitous streptococcus. The greatest success in these cases will be with him who carries out all these methods of treatment, not hesitating to pile up one upon the other until the disease is checked.

As a routine treatment for a given case the author would suggest the following: Give chloroform or keep the patient under

morphine and also give the bromides and chloral per rectum. Protect the patient from injury. Induce labor. Bleed if the pulse is hard and the patient is plethoric. Give a hot wet pack or bath. Dry-cup the loins and then put on linseed-meal poultices. Give two minims of croton oil on a bread crumb placed on the tongue. In a large percentage of cases a good result will be obtained if treated in this manner. Even with all this treatment, however, there are, unfortunately, cases which do terminate fatally; but as far as we are concerned, we cannot recognize them beforehand, and so we must not omit one item of the treatment.

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*THE USE OF IRON AND OPIUM IN  
BRIGHT'S DISEASE.*

In the *Journal of the American Medical Association* of July 23, 1898, TYSON, of Philadelphia, tells us that he has learned since advocating iron in all cases of Bright's disease that there is a good deal of mischief done by iron in this malady, and he is not sure that it would not have been better for many patients if the gallons of Basham's mixture which have been prescribed since Dickinson first suggested it over twenty-five years ago had been poured into the street gutter rather than into the stomachs of the patients it was intended to benefit. It is an interesting fact, confirming the statement already made, that scarcely a patient ever comes to him in consultation or is sent from another physician who has not been taking Basham's mixture, and it is further confirmation that in a very large number of these cases it is given under the impression that it has some specific effect toward curing Bright's disease. It is needless to say that it was never suggested for any directly curative purpose, but simply as a remedy for the anemia which is so conspicuous a symptom in many cases, and for this purpose it still is and always will be useful.

But not every case of Bright's disease is anemic, and as iron has no specific curative effect it is clearly not indicated in non-anemic cases. Nay more, it is often harmful. It is harmful by locking up secretion and checking elimination already restricted by the diminished functional activity of the kidney. The direct results of this are seen in headache and head-throbbing, associated with constipation and coated tongue, to which the patients themselves often call attention, and which appear much earlier in these cases than in persons who have integral kidneys.

In such cases Basham's mixture or iron in any form may even precipitate uremic symptoms.

While anemia as determined by the appearance of the patient and more accurately by a blood count and hemoglobin measurement is the only indication for the use of iron, it is possible also to indicate in a general way the class of cases in which iron may or may not be useful. Thus it may be laid down as a rule to which there is almost no exception that iron is not indicated, and should not be prescribed, in cases of acute Bright's disease. Iron is at best a remedy of slow operation so far as good effect is concerned, while it is rapid in producing its harmful influence, whatever that may be. In acute Bright's disease there is not generally anemia, and where there is it is of secondary importance to more urgent symptoms. It is trespassing on nature, therefore, and embarrassing other more urgent treatment to give iron in acute nephritis. On the other hand, after the acute symptoms have passed away and convalescence sets in iron is often very useful.

A second class of cases in which iron is contraindicated and is more frequently harmful is chronic interstitial nephritis. The association in this condition of more general total destruction of tubular epithelium with restricted elimination goes to show that it is not unlikely that in parenchymatous nephritis, acute and chronic, the renal cells are capable of a certain degree of function even though they be cloudy and swollen. At any rate, it is in chronic interstitial nephritis that iron is more promptly and dangerously harmful than in any other form of Bright's disease. It does happen that in advanced stages of this affection there is sometimes extreme anemia, and it would seem that under these circumstances it might be used; and under such circumstances, if at all, it may be. But even in this, representing as it does the last stages of the disease, in which a dilated heart is staggering under a load it can barely carry and in which a last straw may either cause it to stop beating or furnish the spark to ignite a fatal uremia, the drug is of questionable value.

The form of Bright's disease in which iron is best borne is chronic parenchymatous nephritis; and as this is apt to be associated with more or less anemia it becomes a most valuable remedy in overcoming this symptom. Even here the doses given are usually needlessly large. The writer holds that wherever iron appears in the stools, for what-

ever cause administered, this unabsorbed portion is useless, and as it is this which acting as an astringent causes constipation, it is not only wasted but harmful. His practise is to determine the proper dose by an examination of the stools, and if these are decidedly blackened, he holds that he is giving too much. On the other hand a slight coloration may be permitted as indicating that a sufficient dose has been attained.

A further explanation of the general use of Basham's mixture is the very common impression that this preparation of iron is diuretic. The writer is inclined to believe that this is an error, or at any rate it is no more diuretic than the bulk of water which constitutes its menstruum. That some diuretic action may be expected from this source is rendered reasonable by the fact that Basham's mixture, and in fact any preparation of iron, is commonly freely diluted. The ingestion and absorption of so large a bulk of water may be reasonably expected, by the increased intravascular pressure which it excites, to produce increased secretion of urine.

As to the second of the drugs mentioned in the title of this paper, the writer believes the dangers of its use are more generally appreciated, and yet he is confident that many a life is sacrificed by the injudicious use of opium. He believes, therefore, that a word of warning cannot be out of place. That we should endeavor to understand the conditions contraindicating the use of opium in Bright's disease is the more important, because there are certain states in which opium has been held to be of signal advantage, namely, in the treatment of uremic convulsions. He regards the evidence in favor of the efficiency of hypodermic injections of morphine in certain cases of uremic convulsions as altogether too conclusive to admit of denial, yet he is certain that death has not infrequently been precipitated by it, and when he tells us he has seen a fatal uremia induced by a couple of teaspoonfuls of paregoric, he trusts to convey an adequate idea of the dangers of this drug.

First, perhaps, it is desirable to know the conditions in which opium is positively contraindicated. First and foremost is chronic interstitial nephritis. The writer regards the use of morphine in this form of Bright's disease as harmful in the extreme, and the hypodermic injection of morphine in such cases should be positively forbidden. It is this form of disease in which he has known so many cases launched upon a last sleep

whence they have never awakened. He does not think it possible to be too emphatic on this subject, and he desires to raise his voice against it in the strongest terms. The beginning of the evil result is a diminution and finally a suppression of urine, followed by coma and death. It is especially in old persons in whom chronic interstitial nephritis is unsuspected in which this accident occurs. Hence, too, the importance of examining the urine of old persons before administering opium.

After chronic interstitial nephritis come cases of so-called surgical kidney or suppurating kidney due to stone in the bladder, tuberculosis of the kidney, and the like. The danger in these cases depends a good deal on the degree of kidney substance destroyed. It is well known that operation alone in some of these cases becomes the exciting cause of graver changes which terminate in uremia, as seen in the well known case of the Emperor Napoleon III, while Tyson is confident the use of opium has precipitated many more. Fortunately, the modern practise of surgeons in repudiating almost entirely the use of opium after operation has served to diminish largely the number of accidents from this cause, while another saving clause exists in the fact that while the kidney is often extensively destroyed, in many cases there remain considerable areas in which the kidney substance is sound. This is in marked contrast to the state of affairs in chronic interstitial nephritis, where the invasion is uniform.

Finally, the more extensive the destruction of the kidney, whatever the form of the disease, the greater the danger from the use of opium. Therefore, chronicity becomes in a general way a measure of the danger risked. The writer says, to some extent, because the progress in different cases varies so much, that duration is not always a measure of the destruction of the kidney. On this account chronicity has its limitations as a sign of danger when we have not chronic interstitial nephritis. On the other hand, it becomes more important to insist on great caution in the use of opium in every case of renal disease. In chronic cases of the more doubtful kind the way may be felt by means of very small doses gradually increased, where opium is indicated for any cause.

A corollary following from the last rule brings us to those cases in which the use of opium is least harmful and in many conditions most happy in its influences. These are cases of acute nephritis and of puerperal

nephritis, and the condition in which it is often useful is the uremic convulsion in such cases. The use of opium in the treatment of uremic convulsions in acute Bright's disease is intimately associated with the name of Alfred Loomis, and his original position has been much misrepresented. It was only in acute Bright's disease, as Dr. Loomis himself told the author, that he recommended hypodermic injections of morphine, while others claiming to follow him have advised it for convulsions in all stages. The writer believes Dr. Loomis' original position is justified and that we may still use with signal advantage this mode of treatment. The only risk lies in cases in which the diagnosis is doubtful, and the treatment should not be applied without careful investigation—indeed, dispensed with except in cases of absolute certainty.

The treatment of puerperal convulsions by the hypodermic injection of morphine is justified on the ground that most of these patients represent cases of acute nephritis. But here, even more than in the cases just described, great caution should be used, for not every case of puerperal convulsions is a case of acute Bright's disease, and now and then it happens that death is precipitated because such a case happens in which the use of opium is dangerous.

It will appear from what has been said that diagnosis is the safety gauge by which danger is to be averted. First of all, we should be certain that cases of other disease requiring the use of morphine are not complicated with chronic Bright's disease. Cases in which the writer has known accident to happen have been simple diarrhea calling for the use of opium, and violently painful conditions, such as angina pectoris. In no symptom of Bright's disease itself can opium be of use except in convulsions, and for this symptom only in cases of acute nephritis, whether originating from the ordinary causes or pregnancy, and so rarely in chronic parenchymatous nephritis that it may be practically ignored. Finally, under no circumstances in chronic interstitial nephritis should opium be used.

#### POST-PARTUM HEMORRHAGE.

J. V. HENNESSEY writes in the *Albany Medical Annals* for July, 1898, on this important subject. He believes that the causes predisposing to excessive hemorrhage are general or local. The general causes are usually the result of a morbid blood state,

as in nephritis, diabetes, etc. The local causes are generally due to the condition of the uterus, as overdistention from multiple pregnancy, hydramnios, etc., also short or entangled cord, with resulting traction on the placenta, and precipitant labor.

Etherization of the patient seems to act as a cause, whether because of the anesthetic or because it is most often used in abnormal or instrumental labors the writer does not know, but certainly he has seen severe hemorrhage following its use in an undue proportion of cases. When any of these predisposing causes are operative, they may be recognized, and to an extent guarded against. There is one symptom, however, often unconnected with any of the predisposing causes mentioned, the presence of which always warns him of the probability of serious hemorrhage either before or after the expulsion of the placenta, and that is a marked irregularity in the rhythm or force of the uterine contractions.

The writer believes the irregularity of contractions is due to partial and often very slight separation of the placenta, as he has observed in some of these cases a firm and adherent clot of blood on the margin of the placenta. In these cases the loss of blood is greatest before the expulsion of the placenta, as a rule, and the treatment should be prompt, and if necessary vigorous, to induce its removal. This is generally not a difficult matter, but he recalls a case within the last year in which he had to care for a most unruly patient, with an hour-glass contraction of the uterus, retaining a partially separated placenta, with excessive hemorrhage. In this case the treatment consisted of passing the hand into the vagina, forming a cone of the fingers and thumb, and making a strong and steady counter-pressure over the fundus. The cone or wedge gradually overcame the contraction and removal was effected.

The treatment of hemorrhage after the expulsion of the placenta may be summarized as the administration of ergot by the mouth or hypodermically; the intra-uterine injection of hot water, vinegar, or some other styptic; the placing of pieces of ice in the uterine cavity; the removal of blood-clots from the uterus by the hand. The value of ergot is undoubtedly great when administered in the latter part of the second stage of labor, after it has had time to be absorbed, in producing and continuing firm uterine contractions. But in the face of a present and severe post-partum hemorrhage the writer

hardly thinks that it would pay for the time lost in administering it. The injection of hot water or of vinegar is no doubt of value, but either takes time, which he believes might be much better employed. The one means upon which he has long relied is the manual and rapid removal of retained blood-clots. Since he first realized the importance of this procedure he has lost the dread of this complication. It is to the method of doing this and to what may be observed in its performance that he particularly desires to call attention.

Sometimes the uterus is flaccid and does not contract firmly, and in such cases the clots may be large and soft. More often, however, there seems to be moderately or even decidedly firm contraction. The organ is firm and small, and may be grasped in the hand, while at the same time the blood pours from the vagina. If now the uterus be firmly held in one hand and the other passed into the vagina (this is easily and quickly done after the passage of the child), the index and middle fingers enter the uterus, which at the same time is steadily crowded down by pressure on the fundus. The fingers then discover, not clots of any size, but a velvety feeling, as they sweep around the cavity. Now if a vigorous scraping by the ends of the fingers, not the nails, includes every portion of the under surface of the uterus, and particularly the higher part of the fundus, where at this time the cavity is small and wedge-shaped, the velvety feeling will disappear, and the firm, muscular wall of this organ will be distinguished.

If the hand is now withdrawn, a few small, firm shreds of blood-clot will probably be brought out on the fingers. They may not in bulk be much larger than a white bean, and would easily escape notice unless looked for. Thus far the writer has yet to see a case in which the bleeding was not instantly checked, and it did not return after this treatment. If owing to a morbid blood state hemorrhage should still continue, he believes that a piece of gauze saturated with a styptic solution (vinegar being probably the best) passed into the uterus and left there for an hour would be the most promising treatment. [The objection to vinegar is that it is not aseptic.—Ed.]

In every work on obstetrics great stress is rightly placed on the necessity for the removal of blood-clots in post-partum hemorrhage, but Hennessey does not believe that the important part that the small shreds assume in contributing to a localized atony

of the uterus and consequent loss of blood is very generally appreciated. The stimulus to firm uterine contraction produced by the grasping hand outside and the scraping fingers within no doubt is considerable, but as severe bleeding often takes place from what appears to be a firmly contracted uterus, the writer feels that the small shreds, spread like a film over the placental site, produce their effect by keeping open the uterine sinuses.

In closing the writer remarks that of all puerperal conditions requiring treatment, it is most essential that this one should be promptly met, and to do this it should be discovered in its very beginning. For this reason, during the first twenty or thirty minutes following labor the hand should be often slipped over the fundus uteri so that any undue enlargement from concealed hemorrhage may be quickly recognized. This, with some watchfulness of the pulse and of the discharge, will be a sufficient guard.

#### TEMPORARY RELIEF OF TOOTHACHE.

Under this heading we are told by ACKLAND in *Treatment* of June 23, 1898, to treat toothache in the following manner:

First syringe and well wash out the cavity or cavities with a solution of carbolic acid in water (one in forty) to remove the mechanical or chemical irritants as far as possible. Now take two pieces of cotton-wool and prepare them as follows: The first, a mere shred, soak in carbolic and water, one in twenty; the second, and larger—of a size so as to nearly fill the cavity when slightly compressed—soak in ordinary surgical collodion. Then dry out the cavity with a piece of cotton-wool, using an ordinary pair of dressing forceps, and immediately insert the shred of cotton-wool wet with the carbolic solution, followed as quickly by the large pellet of collodion wool. Should the shape of the cavity be against its retaining this temporary stopping, try to use a surface of an adjoining tooth to help to keep it in. The collodion precipitates in the meshes of the cotton, and will soon form a temporary stopping, which, although not of course preventing further decay, will generally tide the patient over for a time, without further pain. If there be more than one sensitive cavity, put a temporary stopping in each.

Inflammation of the peridental membrane and periosteum is generally a result of the death of the tooth following on the further

development of a foregoing pulpitis. It is generally very easy to diagnose, as the slightest pressure on the affected tooth causes pain, and tenderness on the gum over the root or roots is always present. In the mild form it is best treated by drying the gum and painting on a liniment made up as follows:

Liniment iodi,  
Tinct. aconiti, of each 1 minim;  
Chloroformi, 10 minims.

In this form it is sometimes associated with pulpitis, in which case treat the pulp first and paint on the liniment after. In a later stage, but before suppuration has taken place, inject into the periosteum three or four minims of a one-per-cent. solution of cocaine, freshly made with distilled water, or, failing cocaine, use distilled water only. Hold the point of the needle obliquely against the side of the tooth so as to guide it into the interval between the root and the alveolar bone. In the suppurative and abscess stages poppy-head fomentations held hot in the mouth is generally the most effective treatment. They are best made by taking two ounces of poppy-heads and boiling them in a pint of water sufficiently to evaporate to half a pint in volume, straining off the liquid, and using it hot. Leeches, with or without a tube, can be applied if the patient will undergo the treatment. If an abscess be present it should be drained if possible.

A great deal of relief is often given by general treatment, such as the use of calomel and mild purges.

#### ON THE USE OF THE SENECIOS IN FUNCTIONAL AMENORRHEA.

An exhaustive and valuable paper on this topic has just been printed in the *Edinburgh Medical Journal* for May, 1898. As the result of a long series of experiments the writer is led to agree with Murrell that "senecio is not an ecboic." He also agrees with Murrell that the drug will not provoke menstruation in cases of marked anemia or advanced phthisis, but will do so in cases of functional amenorrhea. Murrell, however, judged that senecio increases the quantity of the discharge, while his own cases point to the opposite conclusion. The views of Bardet and Bolognesi are identical with the author's on these points, though they differ as to the mode of action of the drug. As to dysmenorrhea, Murrell and Dalché and Heim found the drug useful in certain cases, while he is inclined to agree with Bardet and

Bolognesi that it will not be found of much advantage for the relief of pain.

A little thought on the physiology of menstruation will provide a working hypothesis for the action of senecio which is sufficiently reasonable to justify its use, and which also defines its indications.

A man, while his weight remains constant, elaborates from his food an amount of highly organized material exactly equal to the amount of similar material broken down by his activity and removed from his body by lungs, kidneys, and skin. Income and expenditure of protoplasm in the adult healthy male are equal—the anabolic changes balance the catabolic.

A woman, on the other hand, manufactures during her reproductive life highly organized material in a quantity larger than that needed for her individual use. Her protoplasmic income is greater than her protoplasmic expenditure from puberty to the menopause—her anabolic changes preponderate over the catabolic, and the balance is expressed as follows: During pregnancy the anabolic surplus goes to form the fetus; during lactation it supplies the milk; at other times it is lost at monthly intervals by hemorrhage from the uterine mucosa. Before puberty and after the menopause, though female in structure woman is not reproductive in function; and the balance between the anabolic and catabolic changes that together constitute her metabolism is disturbed, as in man, only when weight is being gained or lost. Thus we can see the physiological significance of a periodic sanguineous discharge from the uterine mucosa. With the evolution of the function we are not here concerned, nor yet with the adaptation of the human ovum for implantation on a surface denuded of its epithelium by menstruation. It is necessary, however, to know what determines the particular time at which menstruation shall occur.

Congestion of the reproductive organs accompanying the rupture of an ovisac has, until recently, been thought to be the immediate cause of each menstrual flow. But we now know that ovulation can occur without menstruation, and that menstruation can go on without ovulation. The proofs of these statements are too well known to need recapitulation, but two cases described by Bossi may be mentioned. In one there was monthly bleeding from the anus in a patient who had no vagina, and in whom both ovaries and uterus were infantile. In the other case, a

woman aged thirty-seven, who had always menstruated regularly, became affected with too prolonged periods, during which the discharge was unduly large in amount. Hysterectomy was performed and it was found that she had no ovaries nor tubes! The fact that the removal of both ovaries and tubes does not always cause cessation of the menstrual function points to the conclusion that when Battey's or Tait's operation does cause a premature menopause, it is not through the removal of the organs, but by the division of certain nerves in the broad ligaments. This view has led to the formulation of the "nervous theory" of menstruation; and we now agree with Christopher Martin that the function is presided over by a special center situated in the lumbar part of the cord, and that impulses to menstruate reach the uterus through the pelvic splanchnics or the ovarian plexus, or by both routes.

Thus menstruation expresses an anabolic surplus produced by the healthy human female from puberty to the menopause, its occurrence being determined as to time by the activity of a special center. In the light of this view of menstruation, we see that substances like iron, which affect the quality or quantity of the blood, are only indirectly emmenagogues. Substances which, by causing renal or gastro intestinal irritation, promote pelvic congestion and uterine hemorrhage should hardly be called emmenagogues at all. A true direct emmenagogue must act on the nervous mechanism which initiates menstruation, and this appears to be the mode of action of senecio.

Having thus cleared our ideas, we can now classify the commoner kinds of amenorrhea in a way which shows which cases are suitable for direct treatment by an emmenagogue such as senecio.

Amenorrhea due to congenital or acquired deficiency or absence of essential reproductive organs—no treatment.

Amenorrhea due to local defects, such as atresia vaginæ, atresia cervicis (congenital or acquired), neoplasms, etc.—surgical and other local treatment.

Amenorrhea due to general disease, which so disturbs metabolism that the patient has no blood to spare, e.g., anemia, phthisis—treatment by drugs and food, acting indirectly.

Functional amenorrhea, due to want of activity of the nervous mechanism initiating menstruation; this includes cases in which the function has never been established, but

where there is no general or local defect sufficient to account for its absence; also cases in which menstruation is arrested by mental or physical shock, hope or fear of pregnancy, and other causes—treatment by a direct emmenagogue, such as senecio.

Several species of the genus *Senecio* which have been specially investigated are as follows:

*Senecio vulgaris* and *S. Jacobæ*: Two alkaloids, senecine and senecionine, in small quantities.

*Senecio aureus*: Used in America.

*Senecio maritimus*: Used in France.

*Senecio canicida*, Mexico: Fatty acid, poisonous.

*Senecio Kampferi*, Java: Fatty acid (Shimoyana).

*Senecio hieracifolius*, United States: Resin and essential oil.

*Senecio erucifolius*: Alkaloids both present in some quantity.

*Senecio paludosus*: Alkaloids in still greater quantity.

*Senecio gracilis*: Known to herbalists.

Shimoyana found a new fatty acid in *Senecio Kampferi*, a Javanese species. It was named senecic acid ( $C_8H_8O_2$ ), but is not necessarily identical with the fatty acid of the same name found in *Senecio canicida*, a Mexican poisonous species. This latter is a colorless volatile liquid, whose salts are soluble in water; twenty centigrammes will kill a small dog in four to six hours. A phase of excitement is followed by a phase of depression; then convulsions occur—first clonic, later tetanic; finally, the reflexes are suppressed, and heart and respiration are arrested (Guillouet and Toussaint). In spite of the convulsive action of its acid, *Senecio canicida* has been recommended in epilepsy by Mexican physicians.

Senecin is the brown resinous substance derived from *Senecio Jacobæ* and other species. It was used by Murrell, and was believed by him to contain an active principle of the plant. It is probably a mixture. A resin and an essential oil have been obtained from *Senecio hieracifolius* (Syn. *Erechtites*), a species found in the United States (Todd and Lloyd).

Senecionine ( $C_{18}H_{25}AzO_6$ ) and senecine are two alkaloids isolated by Grandval and Lajoux. They are bitter bodies, whose salts are soluble in water, and are found in very small quantities in *Senecio vulgaris* and *Senecio Jacobæ*, but in slightly larger proportion in *Senecio erucifolius* and *Senecio paludosus*.

The alkaloids exist only in the subterranean parts of the plants. As the difficulty of obtaining them in any quantity has hitherto prevented their use for clinical experiments, Dalché and Heim propose making separate liquid extracts of the aerial and of the subterranean portions of the plants, experiments which will decide whether the emmenagogue action is due to the alkaloids or to some other active principle. But if Lutz is correct in stating that the alkaloids are found in the root alone, the emmenagogue action cannot be due to them; for the author's liquid extract, which is certainly active, is made from the aerial portion of the plant alone, and therefore should not contain alkaloids. The writer therefore thinks with Murrell that the resinous "senecin" contains the emmenagogue principle.

Wiet found by experiment on frogs and guinea-pigs that chlorohydrate of senecionine destroys the excitability of motor nerves, but leaves intact the irritability of muscle itself. In sufficiently large dose it is a curariform poison. Its effect on sensory nerves remains doubtful. It slows the action of the heart, and in fatal doses stops the organ in systole.

#### *RHEUMATIC PERICARDITIS AND ITS TREATMENT.*

In *La Presse Médicale* of June 4, 1898, is an article by PLICQUE upon this subject. After pointing out that rheumatic pericarditis is in the adult more rare than endocarditis, but in children that rheumatic pericarditis is the more common lesion of the two, and after describing the symptoms of this disease, the chief one of which is perhaps violent pain, he goes on to point out that signs of cardiac collapse, syncope, small pulse and cyanosis may be present. In some of these instances the pericarditis is complicated by a true myocarditis. The treatment is first prophylactic. There is no doubt in Plicque's mind that while the salicylates do much towards relieving the articular pain, they are of little value in preventing cardiac complications, except in that they shorten the duration of the disease. Small doses of sulphate of quinine may also be valuable as a supportant and prophylactic treatment. After the pericarditis has once been established the chief part of the treatment should consist in local counter-irritation. Leeches may be applied over the precordium or wet cups may be used, and this method of treatment often relieves the dyspnea and precordial pain. In some in-

stances the ice-bag, which has been highly recommended by some clinicians, is not well borne, and in its place local applications of mercury and belladonna ointment placed upon flannel may be made. After the acute stage of the pericarditis is past a blister or a cautery may be useful. For the cardiac feebleness small doses of digitalis are advisable, but should these doses produce great slowness of the pulse then tonic treatment consisting in the administration of alcoholic beverages such as champagne, coffee and acetate of ammonium may aid the digitalis. Subcutaneous injections of ether, caffeine, camphorated oil and inhalations of oxygen are also advisable. The necessity for paracentesis in pericarditis rarely arises, but if it does the fifth interspace to the left of the sternum is the best point for inserting the needle.

#### *THE TREATMENT OF ACUTE PERITONEAL TUBERCULOSIS.*

At a recent meeting of the Paris Society of Surgery, LEJARS reported two cases of peritoneal tuberculosis of recent origin and rapid progress, one of which simulated intestinal obstruction, the other acute peritonitis due to perforative appendicitis. In both instances the condition of the patient was most grave when Lejars practised laparotomy. On opening the belly it was found that no strangulation existed, but that the peritoneum was covered with tubercular granulations. After washing the abdominal cavity with artificial serum the abdomen was closed. The acute symptoms disappeared and the general and local disorder was ameliorated, and he believes that the operation has resulted in both a temporary and permanent cure of the case.—*Journal des Praticiens*, June 18, 1898.

#### *ARREST OF HEMORRHAGE FROM LARGE VESSELS BY SUTURING.*

LINDNER (*Berliner Klinik*, April, 1898) reports a case in which, during an attempt to close a fecal fistula in the left groin, the common femoral artery and vein were both opened. The bleeding from the vein was arrested by resection of about three-quarters of an inch of the wounded vessel and by double ligature. The arterial wound, on the other hand, was closed by two rows of fine silk sutures. The patient, an old and feeble man, made a good recovery.

The author remarks that, whilst occlusion



by ligature of a large arterial trunk alone, or of the accompanying venous trunk alone, is not likely to be followed by gangrene of the distal parts, simultaneous ligature of both vessels is, in this respect, attended with much risk, which is more likely to occur after wounds of both common femoral vessels than after a similar injury either of the axillary vessels or of the large vessels of the neck. Experiments on animals and the successful results of cases recorded by Schede have proved that under modern conditions of practical surgery a wounded vein may be sutured effectually without any risk of phlebitis. The indications for suturing are much more urgent in the case of a wound of a large artery, for, however small the wound may be, the prospects of closing it by compression are not so favorable as in the case of even a large venous wound. The practise of suturing an arterial wound must be subject to certain restrictions, as experience has proved that it would not be safe to apply a suture to a transverse wound involving more than one-half the circumference of the vessel. In such cases it would be advisable to resort to the practise advocated by Murphy of resecting the injured portion of the artery and bringing the ends together, the proximal end being invaginated into the distal one, and fixing them by five sutures. In practising arterial suture Lindner would transfix all the coats of the vessel, and in selecting the material of his suture would prefer fine silk to catgut. —*British Medical Journal*, June 11, 1898.

#### THE ANAPHRODISIAC ACTION OF THYROIDIN.

Anaphrodisiacs are not greatly in demand in therapeutics, though various drugs are known to exert incidentally a depressing effect on the genital functions. According to Dr. Riviere, of Lyons, thyroidin is one of the latter group, and he reports two typical cases of men who sought relief from exaggerated obesity in the thyroid treatment. They both lost weight very rapidly under the influence of the drug, but observed with surprise, not unmixed with apprehension, that the sexual function had fallen completely into abeyance. This condition persisted for some time after the cessation of the treatment, though the function was eventually restored. It is suggested that this "therapeutical castration" may possibly help to explain the inhibitory influence ex-

erted by the gland on the growth of uterine myomata and especially on the hemorrhage which their presence occasions. On the same lines there is reason to believe that thyroidin may prove useful in the treatment of prostatic patients whose troubles are due to congestion of the genito-urinary apparatus. —*Medical Press and Circular*, June 1, 1898.

#### THE VALUE OF CERTAIN DRUGS IN THE TREATMENT OF GOUT.

In *The Lancet* of June 11, 1898, LUFF, the authority on gout, concludes that the ordinary alkalies, the lithium salts, piperazine, and lysidine, do not exercise any special solvent effect on sodium biurate, and their administration to gouty subjects with the object of removing uratic deposits in the joints and tissues appears to be useless.

Sodium salicylate does not exercise any special solvent effect on sodium biurate. Its administration with the object of removing uratic deposits in the joints and tissues appears to be useless, and, moreover, it is apparently contraindicated in gout on account of its leading to an increased formation of uric acid in the kidneys.

#### THE TREATMENT OF UREMIC CONVULSIONS AND COMA, WITH SPECIAL REFERENCE TO THE SENILE KIDNEY.

In a recent issue of *The Lancet* WILKINSON, in writing upon uremia, has much of practical use to say of its treatment. He thinks that the prevention and treatment of uremia in senile kidney and other renal failures may be best considered under two heads: (1) attention to diet, and (2) measures calculated to aid excretion, to lower arterial tension, and to quiet convulsions. Though of the greatest importance, a few passing remarks must suffice for the former. Temperate living in old age would lengthen many a life, warding off apoplexy and uremia. Indeed, the marked difference in personal comfort and vivacity brought about by a change in table habits has often astonished both the patients and their friends, as the former entirely ceased to discuss whether life was worth living. This need not entail the adoption of liquid or invalid diet, for in advanced life the stomach usually secretes and digests more satisfactorily when stimulated by solid food than when treated to "slops." The sum total of food should be restricted within

reasonable limits. This is more important than any specific act of self-denial. If an egg or fish be allowed for breakfast animal food should be permitted at one subsequent meal only, and that not too late in the day. To prevent undue condensation of urine the amount of liquid imbibed should average forty fluidounces and be taken chiefly between meals, lest it dilute the gastric juice. Intoxicating liquors are better forbidden; if insisted on, a small amount of diluted dry spirit during the chief meal and at bedtime may open the tardy stomach arterioles and favor sleep. That vascular tension is thus kept down is matter of observation. Prolonged uremic coma, just like an attack of gout, is a time of diminished ingestion, and the latter no doubt aids the recovery.

Under the second head the author discusses in more detail the value of (a) purgatives; (b) chloroform, bleeding, and the nitrites; and (c) diaphoretics. The importance of attention to the bowels cannot be overestimated. Not only does regularity greatly lessen the chances of secondary fermentations and toxin formation, but by purgation we can turn out of the body bile and half-digested food and also command the radicles of that vein which carries the crude products of digestion to the great provident dispensary of the body, the liver, where for weal or woe so many mixtures are made. Modern abdominal surgeons, whose one aim in the old days was to keep the intestines quiet, are now beginning to realize their value in elimination and to substitute calomel and salines for opium. They talk of "the race for the bowels," and use the intestine as if it were a drainage tube.

The writer firmly believes that in commanding the liver and intestines we hold the most important excretory area in the body after the kidneys. In this respect the views of the late Dr. Mahomed were undoubtedly correct. Indeed, the efficacy of purgation in high arterial tension and uremia is acknowledged by all, but there is still considerable diversity of opinion as to the relative value of the different drugs. May we employ calomel? Sir William Broadbent places it *facile princeps* amongst the drugs which lower arterial tension and strongly advocates its use in from two- to five-grain doses. Many other writers—e.g., Dr. Whitla in his excellent Dictionary of Treatment—only mention it in order to warn their readers not to prescribe it, and the writer's early training and teaching ran in the same

groove. Now he frequently exhibits it when he has reason to regard the uremic phenomena as out of proportion to the organic renal change. Should the cells of the kidney be much degenerated—that is to say, in parenchymatous disease with dropsy, marked albuminuria, and abundant fatty epithelium and casts—the drug is distinctly dangerous. Quite recently he saw such a case in which five grains of calomel had been given. It stopped the uremic vomiting, relieved for the time the headache, and lowered the blood tension, but the marked swelling and tenderness of the salivary glands and gums, the furred, foul tongue, etc., gave ample evidence that the administration was a mistake.

In the terminal uremia of Bright's disease calomel acts as a poison, and the more definitely the cerebral phenomena depend on organic renal failure the more doubtful the use of mercury. The condition of the kidneys in Bright's disease is in the writer's opinion to be our guide. It is the fact that severe convulsions and coma may be associated with a minimal or passing renal defect that makes calomel admissible. That all such cases have exactly the same pathological substratum the writer is far from believing, but the use of calomel is not limited to those conditions in which the renal trouble is only transitory. Whenever the blood tension is high, the urine is passed in fair quantity, of average or high specific gravity, deposits urates and contains only a small amount of albumen, he employs calomel without hesitation. Taken alone the amount of albumen present is of little importance. In puerperal convulsions he has seen very highly albuminous urine return to the normal within a few hours. Numerous and varied renal casts must, however, make us pause, more especially if they testify to chronic tubal change.

In senile failure, and in the middle and later stages of chronic interstitial nephritis, we must remember that the system is sensitive to mercury and therefore recall Dr. Ringer's remarks on minimal dosage. In early days the writer saw thirteen grains and twenty grains of calomel given as a purge with excellent results. The Cheadle bulldogs, of local repute, are said to owe their ferocity to this drug. Such treatment in renal failure could only be regarded as tempting Providence. One grain is often an ample dose. Quite recently the author saw a gentleman, well in the "teens" of stones, who smiled at the powder in the evening, but

assured the writer that his respect for it was considerably raised on the following morning, as it kept him from business. A lady, aged seventy-six years, who was under his observation for several years with gouty cardio-arterial and retinal changes, was severely purged by one grain of calomel, but so greatly relieved thereby that for three or four weeks after each dose she seemed to have taken a new lease of life. The same lady for three years took five grains or more of pulvis ipecacuanhæ compositus every night with great advantage, a method of administering opium in Bright's disease which the author considers to be safer than any other. As commonly happens, this patient died from an acute and entirely independent affection.

Calomel undoubtedly reduces high arterial tension and relieves the troublesome cardiac, pulmonary and cerebral phenomena associated with it. It takes several hours to act, but the effect produced is less evanescent than with other drugs. How calomel acts the writer does not profess to explain. That mercurials will often clear a dense uratic urine is known to all. Elimination of bile by the bowel is probably the principal part of the programme. Anyhow, in dealing with high tension calomel is superior to all other purgatives, including blue pill. It sweeps and drains the intestines as well as the hepatic ducts, and in his opinion differs materially from crude mercury in its action. In a case of obstructive jaundice of some weeks' standing, now under the writer's care in the Manchester Royal Infirmary, in which the administration of olive oil, massage and other treatment have failed to remove the obstruction, both patient and medical man gave independent witness that one grain of blue pill taken three times a day increased the color of the skin and urine, while one-grain doses of calomel caused decided improvement in the digestion and complexion and lessened the urinary excretion of bile, in spite of the continuance of the block in the main duct.

Next to calomel, but as its aide-de-camp rather than its substitute, the author does not hesitate to place Epsom salts, and in acute cases he is accustomed to follow up the calomel after five or six hours with two- to four-drachm doses till free purgation occurs. In chronic high tension an aperient dose of the *mistura alba* on rising each morning gives very definite relief. He uses it extensively in out-patient practise and finds, as Dr. Whitla observes, that it can be continued with advantage for long periods. Our mer-

curial ancestors, with their nightly blue pill and morning black draught, and their by no means delicate attentions to the *primæ viæ*, were perhaps nearer the mark than some of the more scientific moderns. The writer is told that a friend of his, a clergyman, was a younger and a better man whenever he had time and grace to attend to his bowels. When calomel is contraindicated, and especially if dropsy be present, he often employs the compound jalap powder in drachm doses. Some fortify it with elaterium; but Wilkinson's experience of the latter drug has not been encouraging. On two occasions the fault may have been in the quality of the drug supplied; in other cases it has been rejected or failed to act. An extra drachm or two of bitartrate of potash may be added, as recommended by Sir William Roberts, with excellent result.

There are, however, cases in which the convulsions are so severe and the whole condition so critical that some method of treatment more rapid than purgation is urgently demanded. If the blood tension be high, Wilkinson believes that both theory and practise uphold blood-letting as a reasonable and efficient remedy. It is true that physiology teaches us that moderate venesection does not lower the arterial blood-pressure, and arguments have been based on this statement deriding its utility in disease. But surely a deviation from the normal is a very different thing from a return to the normal. The aim of the automatic regulating mechanism of the body is to secure normality. It may raise the blood-pressure with a view to increased excretion, but it will gladly allow a return to the normal if practicable.

The writer advocates bleeding as a temporary device to tide over a crisis; that it accomplishes its end is undoubted. It must in most cases be backed up by measures more definitely depurative in character, dietetic and excretory. Some obstetric writers, like Dr. Galabin, absolutely set their faces against it. A friend of the writer's, surgeon to a large hospital, who has had a wide experience in such cases, told him that the only patient he lost in puerperal convulsions was the only one he did not bleed. Its utility in uremia is maintained by such authorities as Sir William Roberts, Sir William Broadbent, and Dr. Osler. It may be employed with advantage in all cases in which calomel is admissible. Where the patient is already very anemic and the kidneys are far advanced in organic disease, both remedies are

worse than useless and the prognosis is not markedly affected by any treatment. In the clergyman first referred to the congested face and full habit of body distinctly warranted the use of the lancet, but the absence of convulsions allowed time for the action of still better remedies.

In dealing with severe puerperal eclampsia chloroform by the lungs and chloral and bromide per rectum are of unquestionable value. Nevertheless, though they mitigate the convulsions, like morphine they mask the coma, and the writer is bound to confess that when the pulse tension is high and the patient is plethoric he is inclined to the older method of treatment. Of the reputed value of morphine in uremia proper he has had no experience and prefers to commence the trial of it on his enemies rather than on his friends. Still it is peculiar that the two drugs, mercury and opium, against the use of which in Bright's disease we were formerly warned, should be now both to the front in the treatment of uremia. This does not prove that the former fears were groundless, but rather supports the writer's present position, namely, that the more pronounced symptoms of uremia, coma and convulsions, are often associated with comparative renal integrity.

In dealing with the results of chronic high tension, the writer has found the nitrites very useful, but so far has not tried them in actual convulsions. An aching head or a heart struggling irregularly and painfully against an overfull arterial system will at once gratefully acknowledge the receipt of a dose of nitrite of ethyl, as suggested by Dr. Leech, or more slowly respond to tabellæ of nitroglycerin. The latter preparation, because of its stability and ease of administration, he frequently employs in chronic high tension. It gave great relief to the second case and may be used to diminish the intense headache which often accompanies the development of albuminuric retinitis. The sphygmograph readily reveals the action of the drug and may be employed to indicate the amount and frequency of the dose required to mitigate the tension. The writer uses the term "mitigate" advisedly, for to relieve the symptoms it is not necessary, nor indeed is it an easy matter, to establish a normal tension. A tabella every six or eight hours is usually sufficient to accomplish the desired end. In one case of cardiac asthma with very irregular high-tension pulse the relief given by the nitrites was so great that the pa-

tient was immediately transferred from his bed to the local races, and the latter end of that man was worse than the first. As his medical attendant observed, the treatment both cured and killed him. Sometimes the nitrites produce definite diuresis, but even this should not lead us to set aside other eliminatory measures. When the kidneys fail the skin presents a large and active secretory area second only in importance to the mucous membrane and glands of the alimentary tract. The fact that in Bright's disease urea is excreted by the skin is a definite indication to the therapist. Of every-day drugs the sweet spirit of nitre and the acetate of ammonia are the most popular and valuable diaphoretics, but in uremia we are compelled to adopt more active measures, such as the external application of heat, wet or dry, and the hypodermic injection of pilocarpine. The hot pack is one of our most valuable remedies and available in almost all cases. It is, however, to be specially selected when calomel and venesection are out of the question, when the system generally, and the connective tissues in particular, are drowned in ureated liquid, and when the brain disturbance is more dependent on direct intoxication than irregularities of arterial pressure; in other words, in the dropsical uremias of blocked or bankrupt kidneys.

The employment of pilocarpine hypodermically is not without its dangers. Nevertheless, if other remedies fail, it may be tried, provided the patient possesses full power of deglutition and the thoracic organs are in good condition. Its action should be assisted by the use of hot blankets, or bottles, and warm drinks. Usually the response of the skin is rapid, a few minutes sufficing to start the perspiration, but the response of the system is somewhat more uncertain in time and degree. The effect produced, however, in some cases, as in the second already referred to, is very striking. Personally, the writer avoids the use of the drug if possible, but confesses that he has not tried the method of inunction recommended in milder cases by some writers with the object of reducing the risk of cardiac collapse and pulmonary edema to a minimum. As pilocarpine is recommended in some forms of insanity it may be interesting to add that the writer's friend, Dr. Wansbrough Jones, after the hypodermic injection of one-third grain for ocular disease, witnessed the immediate development of acute melancholia with attempted suicide, and the repetition of the dose some time

later at the recommendation of the oculist led to a similar disturbance followed by several months' detention in an asylum. As there was no family history to suggest such a complication the drug was naturally suspected. At any rate the dangers of pilocarpine are sufficiently real to render its use a matter for deliberation.

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*THE TREATMENT OF SUPPURATION BY  
BICARBONATE OF SODA.*

BRUCKER (*Thèse de Bordeaux*) has made a study of a fact observed by himself, namely, the influence of the reaction of the blood in the healing of certain conditions. Bearing in mind that the normal alkalinity of the blood shows important variations according to sex, age, and as to whether the blood is arterial or venous in origin, and the diet to which the patient has been addicted, and that in certain pathological conditions these variations are very marked, so that a reduction in the normal alkalinity is observed in certain cases of febrile reaction due to bacterial intoxication, he has found that certain artificial intoxications can be combated by raising the alkalinity of the blood by the injection of alkaline serum. Going on these grounds, Brucker has principally investigated the influence of alkaline dressings in the treatment of local inflammatory affections, and according to his observations such a dressing, whether moist or dry, very rapidly reduces the inflammation, suppurative or otherwise, and causes rapid healing of wounds. This seems independent of any antiseptic property in the proper sense of the word. The method employed by him is to apply the dressing of absorbent wool on ordinary principles, using merely a two-per-cent. solution of bicarbonate of soda, or in some cases vaselin and bicarbonate (1 in 25), or the soda may be applied directly in the form of a powder. He finds that strong solutions do not act more quickly than a two-per-cent., showing that the chief agent is the alkali, and not any antiseptic principle. The same method may be applied for purulent otitis, etc. — *British Medical Journal*, June 13, 1898.

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*SOME REMARKS UPON A NEW MYDRI-  
ATIC.*

STEPHENSON says that the claims of ephedrine hydrochloride as an agent for dilating the pupil have been before the profession for several years, but apparently without attract-

ing anything like general attention. The first communication upon the subject was made by a Japanese physician, Kinnosuke Miura, and this was soon followed by papers from the pens of J. Inouye and A. de Vriese. From these contributions, however, it was clear that the dilatation of the pupil induced by ephedrine was of moderate extent only, although it possessed the great practical advantage of passing off rather quickly (in from one to twenty hours). Later it was found that the action of ephedrine could be enhanced by the addition of a trace of homatropine hydrochlorate in the proportion of a hundredth part of the latter to one part of the former substance. This observation has led to the combination of the two medicaments. The new agent, which is known as "mydrin," is a white powder, readily soluble in water. Its physiological action has been reported upon by Groenouw in Germany, by Suker in America, by Cattaneo in Italy, and by Mr. Simeon Snell in England. These various observers find that a ten-per-cent. aqueous solution when dropped into the eye has the power of dilating the pupil moderately within a few minutes, without affecting accommodation in the least. They also agree that the action of the pupil to light is to some extent retained while the eye is under the influence of the drug, the effects of which pass away within from four to six hours. In no instance have they seen any irritation or inflammation result from the application. Groenouw, who experimented on one hundred patients, found that the dilated pupil had an average diameter of 5.6 millimeters. Suker speaks of mydrin as "an ideal mydriatic for diagnostic purposes," and Mr. Snell's experiences appear also to have been equally favorable.

These claims seem too strong to be set on one side without investigation. Accordingly for some time past the author has used a ten-per-cent. watery solution of mydrin for the purpose of dilating the pupil, when he wished to explore all parts of the fundus oculi with the ophthalmoscope or to examine the cornea carefully in order to ascertain the presence or absence of slight changes. Moreover, for the purpose of more exact study he has recently taken twenty patients and noted in each one (a) the near and distant sight, and (b) the diameter of the pupil. A single drop of mydrin solution (ten-per-cent.) was then placed in the conjunctival sac, after which the following points were observed: (a) the time at which the pupils became

dilated; (*b*) the transverse diameter of the pupils; (*c*) the near and distant vision; and (*d*) the time at which mydriasis passed away.

The results obtained in this way may be thus briefly related: The pupil became dilated in a period which varied, according to the individual, from fifteen to sixty-eight minutes, the average of the twenty observations being 29.35 minutes. The mydriasis was found to ensue more speedily if patients kept their eyelids closed after the application had been made. Owing to the fact that the iris did not completely lose its action to light, there was some little difficulty in measuring the size of the dilated pupil, the transverse diameter of which ranged from 5 to 7.5 millimeters, and averaged 6 millimeters. For a similar reason it was not altogether easy to say with precision when mydriasis had passed away. But in no instance did the maximum time (after full dilatation) exceed four hours, while the minimum stood at seventy-five minutes. The average worked out at 184.84 minutes—that is to say, a trifle more than three hours. In no case did sight, either for distant or near objects, show any alteration when the eye was fully under the influence of mydrin, a remark which applies also to the position of the punctum proximum. Lastly, it is practically important to note that the agent set up neither discomfort nor irritation.

As the result of his observations the writer has reached the conclusion that mydrin is capable of doing all that writers have claimed for it—namely, that it causes a moderate dilatation of the pupil without involving the function of accommodation. It cannot but prove, therefore, a valuable agent in the hands, not only of the ophthalmic surgeon, but also of the physician, who must often be desirous of exploring the fundus oculi with a dilated pupil.

#### SURGICAL SHOCK.

In the *Memphis Lancet* for July ESTES tells us that the recognition of the essential anemia of the brain as the constant pathological factor in shock gives the key to the treatment. The endeavor should be primarily to restore the blood to the brain. As this cerebral condition in psychical shock and in concussion has been produced by the inhibitory action through the pneumogastric by a violent irritation of the medulla, the vasomotor system must of necessity also be violently affected, as the medulla is the center of the vasomotor

nerves. After lowering the head and placing the person in a recumbent position to obtain at least a small quantity of blood for the brain, the next indication will be to excite the action of the sympathetic nerves in order to restore the tone to the heart. Of course, the elementary procedures of loosening the clothing, especially about the neck and waist, and taking care to supply fresh air, must always be observed. Sometimes a quick, violent action of the diaphragm will assist in stirring up the splanchnic and the direct cardiac sympathetic filaments. Hence irritation of the nostrils in order to produce deep respirations or sneezing will do good. Hare recommends an abdominal compress for chloroform poisoning. Direct cardiac stimulants (rarely digitalis), at the head of which stands strychnine, are indicated. Heat to the surface should be applied in order to relax the cutaneous vessels, and friction to the extremities for the same purpose.

Of the greatest importance in cases of psychical shock is it to remove the person from the place or locality which may have excited the dangerous mental condition before he recovers consciousness, else a relapse may occur. In cases of serious injuries it is of the greatest importance to take proper measures to prevent and to control the hemorrhage *during psychical shock*, for very little bleeding will occur until this condition is passed. As almost complete anesthesia exists, an Esmarch tourniquet may be applied, vessels tied, or sutures put in without any disturbance or harm to the patient. In this condition, as soon as consciousness begins to return and so-called reaction begins, an anesthetic, if given, will hasten the reaction and thereby restore somewhat the tone and quality of the pulse. The author thinks these cases have given rise to the contradictory observations of various surgeons who report that in their experience an anesthetic frequently improves the strength of the pulse; hence they recommend undertaking an operation "before the patient reacts from shock." This is a very unsafe recommendation, because if the second stage, acute anemia, has already taken place, any operation which involves the further loss of blood is very apt to be fatal. The safer rule is always to wait with any operative procedure which must be attended with even a small loss of blood.

The treatment of acute anemia is the same as the foregoing, with the full appreciation, however, that this condition is in these cases from an *absolute* as well as functional loss of

blood. Energetic measures must therefore be taken to restore some blood to the brain. The limbs should be tightly bandaged from the extremities upward to drive the blood out of them to the head, the head and shoulders lowered, heat applied externally, and large doses of strychnine hypodermically should be employed. The author has used as much as 0.025 ( $\frac{1}{2}$  grain) of the sulphate of strychnine in the course of an hour in these cases, and about 0.1 ( $1\frac{1}{2}$  grains) in twenty-four hours. Caffeine in the form of best black coffee, digitalis, and the aromatic spirits of ammonia he frequently uses. Alcohol, he thinks, does harm rather than good; in late years he has not used it for shock.

Besides the above remedies, a most important indication is to restore fluid to the empty capillaries and veins. Many surgeons use habitually intravenous injections of a normal saline solution, and formerly the author also used it; he was, however, so frequently disappointed in its ultimate action that he has not used this method for some time. He has found far better rectal injections of this hot saline solution. Now it is always a part of his routine practise in cases of shock to use large or frequent rectal injections of this solution. If the patient is in profound shock the quantity injected may be large—as much as two liters—care being taken to use a soft rectal tube and pass it up to the sigmoid flexure, while the patient has his buttocks raised, and then allow the fluid to flow from a douche can or fountain syringe into the colon. In cases of partial or complete consciousness he uses half a liter of the solution, always injected by gravity alone into the rectum, and repeat it in an hour. The transit through the intestinal walls into the blood-vessels is slower, but in his hands much more efficient than intravenous injections.

As soon as the stomach will retain it, as much water as the patient can take should be given by the mouth. A generous fluid diet of a nitrogenous kind should be allowed for twenty-four or forty-eight hours, and then light but frequent feeding of a more solid kind. He thinks major operations should never be attempted, if they can possibly be postponed, during shock. He believes the very good results he has had in cases of extensive acute injuries are due largely to the fact that he has waited until the patient has had time to recuperate somewhat from his acute anemia before operating. In the cases requiring hip-joint amputations for

injuries he waited thirty, forty, and about forty-two hours respectively before operating.

In conclusion, the author begs the readers of his paper will not lose sight of its main purpose, through the distraction of possible differences as to the theories advanced. He has tried to prove that shock which kills is a condition of acute anemia; that this operates through the brain, as an anemia of the brain, in depressing *all* the so-called vital processes; and that the proper treatment of shock is in the first place prophylactic, namely, to prevent hemorrhage before operation and during operation, and secondly, to cure shock by restoring blood to the brain as rapidly as possible, and then stimulate the heart by warmth, by good air, by strychnine, and by a normal saline solution injected into the rectum or veins. If all else is forgotten, we must keep firmly and carefully to the idea that the life of a man is in his blood, and in order to save a man's life we must save his blood.

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*THE TREATMENT OF RUPTURED  
UTERUS BY MEANS OF GAUZE  
PACKING.*

The *Practitioner* for July, 1898, has an article by MAYO ROBSON upon rupture of the uterus, of interest to us all. Although the obstetric practitioner is accustomed to be brought face to face with trying and anxious complications of various kinds, needing great presence of mind and prompt interference, there is no more formidable accident needing a decided line of treatment than that of ruptured uterus. Where the rupture occurs before delivery and the child escapes into the abdomen, nothing but immediate abdominal section can offer any chance of saving the patient, and in such cases interference, to be of any avail, must be prompt, both on account of the hemorrhage and shock.

Unless the skilled help of a surgeon be immediately available—as, for instance, in a town practise—it would be very unwise to wait for skilled help in the hopes of improvement occurring, as not only will the shock increase, but the continued pouring out of blood into the peritoneum may, even within half an hour, render operation hopeless.

The author thinks it is not fully realized how few special instruments are necessary in order to perform hysterectomy under such circumstances. While the surface of the abdomen is being washed and other arrangements made, a skein of silk or thread, a piece

of baby-bottle tubing, a knitting-needle, and the instruments which an obstetrician will always have with him—viz, a needle, a knife, and artery or pressure forceps—can be boiled. At the same time a quantity of water may be boiled for lavage of the abdomen, and several handkerchiefs or napkins, to be used as sponges or dressings, can be boiled either with the instruments or in a separate pan.

The abdomen may then be opened in the middle line, the ruptured uterus dragged forward and surrounded by a piece of elastic tubing, which is to be tied tightly around the pedicle above or below the ovaries, according to the site of the rupture, the ends being secured by means of a silk ligature to prevent the knot slipping; the knitting-needle can then be pushed through the uterus from side to side just above the ligature, and the portion of uterus beyond can be amputated. The fetus and placenta, if free in the peritoneum, can then be extracted through the abdominal incision, and the abdomen thoroughly washed out with a solution of salt and water in the proportion of about a teaspoonful to a pint, at about a temperature of  $105^{\circ}$ , which can be poured from a pitcher by the nurse.

The boiled handkerchiefs will serve to mop out the extra fluid and to remove any clots, but even if a little fluid be left in the peritoneal cavity it will do no harm—probably rather good than harm, as it will be absorbed rapidly by the lymphatics and help to fill the blood-vessels, rendering transfusion unnecessary.

The abdomen may then be closed in the usual way by means of the boiled thread or silk. Thus, if the surgeon and nurse have taken care to thoroughly cleanse their hands, an almost ideally aseptic and safe operation may be done with this scanty preparation.

But there is a class of cases of ruptured uterus where the laceration is in the lower segment of the womb and where the rent occurs during delivery, and is probably only noticed afterward when hemorrhage and increasing shock draw attention to something being abnormal. In such cases there is as a rule more time for consideration, as the shock, though great, may not be immediate, and the hemorrhage may not be so violent as to produce immediate collapse.

A simple vaginal examination may not discover the rupture, as the lower segment of the cervix is not necessarily torn; but if the finger be passed within the patulous os,

the rent in the uterus will be felt and the symptoms explained.

It is a great question whether in many of these cases hysterectomy is the better operation, and in a discussion at the Obstetrical Society of London, 1897, a speaker said that in two cases in which, under similar circumstances, he had seen the operation done the patients had died on the table, and the only ones that recovered were those in which packing with iodoform gauze had been done.

The following case exemplifies the advantages of gauze packing: Last year the author received a telegram from a medical friend, asking him if he could come at once to assist him with a case of uterine hemorrhage following an abortion at the third month, in which some difficulty had been experienced in removing the ovum, and the cervix had been dilated with Barnes's bags. On arrival he found the patient blanched and suffering from shock, though the external bleeding was not sufficient to account for the symptoms. On examination the vagina was found intact, as were also the os and cervix; but on pulling down the cervix by means of vulsellum forceps, and passing the finger through the patulous os, it readily passed through a considerable rent in the uterus, direct into the peritoneal cavity. The abdomen was a little distended, and on pressure being made over the hypogastric region, blood was forced through the rent and escaped through the vagina. With scissors he divided the portion of the cervix between the laceration and the vagina, so as to get thoroughly at the rent; but he found it to extend so far up the uterus that it was impracticable to apply sutures to effectually occlude it. He therefore had the edges of the laceration held apart, and after curetting and washing out the fundus of the uterus, and compressing the abdomen so as to force all the free blood possible out of it, he packed the laceration very thoroughly with long strips of iodoform gauze, several yards being used, the packing filling the pouch of Douglas, the whole of the laceration, and the upper part of the vagina. A firm pad was applied above the pubes and kept in place by means of an abdominal bandage. The packing was changed on the third day, and after that every second day. No further bleeding occurred, and no peritonitis ensued. Recovery was slow but uninterrupted, and the patient is now perfectly well.

This case exemplifies well the hemostatic value of gauze packing in a ruptured uterus,



a means at once simple and safe, and one which is always available even if only used as first aid, but which will often, as in the case referred to, carry the case to a successful issue without further treatment.

A packet of iodoform gauze goes into small compass and should form one of the components of every obstetrical bag, as the author feels sure it does of every surgeon's instrument case. He has found it convenient to carry his iodoform gauze in strips about one inch broad, already cut for use, stored in a convenient celluloid case; this occupies a small compass in his bag, and is always clean and ready in case of need.

#### THE EXERCISE TREATMENT OF LOCOMOTOR ATAXIA.

The treatment of locomotor ataxia by exercises calculated to teach the patient again the coordination of muscles that has been lost by degeneration of the lower sensory neurons has recently attracted considerable attention, and has won for itself the support of many neurologists, among whom may be mentioned Leydon, Jolly, Mendel, Eulenberg, Oppenheim, Gerhardt, and Remak. This method of treatment was first introduced by Frankel and has for its prime object the conversion of the simplest ataxic movement into a normal one.

In a communication to the *Deutsche Medicinische Wochenschrift* of December 17, 1897, Frankel, describes the various exercises for the hands, arms, body, and legs. For exercising the upper extremities the following directions are given: Sit in front of a table, place the hand upon it, then elevate each finger as far as possible; raise the hand slightly, extend, and then flex each finger and thumb as far as possible; do this with the right and then with the left hand. Touch with the end of the thumb each finger-tip separately and accurately; then touch the middle of each phalanx with the tip of the thumb. Sit at the table with a large sheet of paper and a pencil; make a dot at each corner of the paper and one in the center, and draw lines from the corner dots to the center dot, first with the right and then with the left hand. Put ten coins on the paper, pick them up and place them in a single pile, first with the right and then with the left hand.

For the body and legs, sample exercises: Sit in a chair, rise slowly to erect position without help of cane or arms of chair; then

sit down slowly; stand with cane, feet together; advance left foot and return it, then the same with right. Walk slowly ten steps forward and five back with help of canes. Stand without cane, but with feet a little apart and the hands on the hips; in this position stoop down by flexing the knees, and rise slowly. Stand without cane with the feet separated; raise the hands from sides above the head; carry them downward and forward, and try to touch the toes. Walk along a fixed line on the floor by help of cane, placing each foot in turn on the line; then repeat without using the cane. Most of these exercises should be repeated several times, and the movements should be made with the eyes both open and closed.

Owing to disturbance of the sensory paths tabetics have lost the sense of fatigue, so there is some danger in overdoing the treatment. Two things are therefore insisted upon: first, every movement must be done with the greatest possible exactitude, since it is not simply physical exercise that is aimed at so much as training in coordination; and second, the séance should not last more than eight or ten minutes, and no more than two should be allowed a day.

In the preataxic stage the exercise treatment has in a number of cases prevented the development of incoordination. Even in advanced sclerosis remarkable results may be obtained; in a number of instances patients, bedridden for three, four and five years, have been taught to walk without assistance. The improvement may last for years, if the disease is stationary or only slowly progressive. According to Frankel the treatment is absolutely contraindicated in cases of acute or subacute ataxia.

Kalinin (*Vratch*, No. 7, 1897), who has used Frankel's method in five cases of locomotor ataxia, draws the following conclusions: By this treatment the loss of motion can be restored to a satisfactory degree, the gait and locomotion gradually becoming safer and firmer. The sense of locality and that of movement, and the skin sensibility, are but little improved. Romberg's symptom very soon became less pronounced. The duration of treatment should entirely depend upon the prognosis and the degree of motor disturbances present, but in any case it should not be less than a month. No ill effects were observed when the treatment was interrupted at short intervals of two or three weeks, but not longer.

Raichline, who has treated twelve cases

with complete success in eight, concludes that the conditions of success are a long, as opposed to a short, course of treatment, a well nourished condition, good sight necessary for watching the movements accurately, a certain amount of energy and intelligence, not complete loss of sensibility, and the absence of arthropathies.—*University Medical Magazine*, May, 1898.

#### THE REMOVAL OF FOREIGN BODIES FROM THE UPPER AIR-PASSAGES.

In a recent issue of the *Post Graduate* RICE gives directions about this important topic. He describes a patient who said that two hours before he had swallowed a piece of beef bone, and he located it by putting his finger on the right side of the neck lower down than the tonsil, about the level of the hyoid bone. The author thinks that seventy-five per cent. of the foreign bodies that get into the pharynx have passed into the esophagus and stomach by the time the patient has reached the physician. Nevertheless, just as diligent search should be made to locate them. A bone which has wounded the lateral wall of the pharynx leaves a very distinct impression, and the patient is not able to determine whether it is still there or has passed into the food passage—fish-bones, meat-bones, the bristles of tooth-brushes, pins, buttons, coins, and the different things found in the lower pharynx or larynx. We will save time if we first spray a four-per-cent. solution of cocaine all over the middle pharynx. First use a tongue depressor and examine the pillars of the pharynx and tonsils very carefully, as bones are frequently caught in these. The tongue may be depressed so low that the top of the epiglottis can be seen without a laryngeal mirror. Examine all this surface. Now use a laryngeal mirror and see if possibly a small bone is lodged between the base of the tongue and the sides of the pharynx. We will have to look very carefully to discover the bristle of a tooth-brush, or a very fine fish-bone; they appear no more prominently than a white line, in the laryngeal mirror.

If the foreign body cannot be seen in the middle pharynx, examine the larynx very carefully. If it is in the larynx we shall have such laryngeal symptoms as coughing, huskiness of voice, and possibly difficult respiration. Another location should not be neglected, and that is the pyriform sinuses. The author removed a large wooden tooth-

pick from the right pyriform sinus a short while ago. The patient had been whittling this piece of wood, and putting it in his mouth, inadvertently drew it into his throat. This could not be seen with the mirror during ordinary respiration, but only when the patient made extraordinary inspiratory efforts.

Once the foreign body is located, we should be able to remove it without much difficulty. Laryngeal forceps with a short bite are more easily applied than those with long opening blades. Every man who does throat work should have at least two pairs of these narrow opening forceps, one opening antero-posteriorly and the other laterally. The difficulty with most all these forceps is that the length, which is bent downwards, is too short, and the curve is not apt to be exactly right.

In speaking of laryngeal applications, the author said that the applicator to reach the vocal cords should certainly be bent down three and one-half inches, and oftentimes four inches. This is also true of the proper length of laryngeal forceps. If a foreign body has entered the food passage it will, as a rule, pass safely into the stomach. We may endeavor to locate it by introducing the finger and then later carefully using some variety of probang, such as the umbrella probang or the ingenious coin-catcher. Foreign bodies, if left to the judicious management of Nature, will often do less harm than if they are handled by the too enthusiastic practitioner.

#### THE USE AND ABUSE OF HYPNOTICS IN INSOMNIA.

The use of hypnotics in insomnia is simply the use of symptom remedies; insomnia is a symptom, not a cause of disease nor a disease. Sleep is essential to the welfare of the organism in the same sense that food is. Deprivation of one or the other causes death in about the same period of time.

The use of hypnotics, therefore, should be temporary while the underlying cause of the insomnia is being removed or palliated. Nor, indeed, is it well at the outset to employ hypnotics without trial of other measures. Aside from the removal of somatic causes for sleeplessness, various general methods may be employed. One of the best is a bath at 104° F. for five minutes. The general cutaneous vascular dilatation, increased by rubbing with a coarse towel, is frequently followed by a good night's rest. Warm liquid food, as a glass of hot milk, or a bowl

of soup, will often give satisfactory results. In fact, some of the hypnotics which, on account of their insolubility, must be given in considerable quantities of hot liquids, owe not a little of their reputation to the vehicle in which they are administered. In debilitated individuals, a glass of stout or whiskey in hot water (hot Scotch) may work wonders. In tired subjects, strychnine sulphate in moderate doses acts as a hypnotic, not because it makes a too tired individual just tired enough to sleep, as a distinguished professor of medicine would have it, but because strychnine dilates arterioles. Sometimes stimulation of the emunctories, as by sodium sulphate, again in hot water, taken at night, will be followed by sleep, particularly in gouty subjects, not because it is hypnotic, but on account of its action on liver, intestines, and kidneys. Methods which relieve pain—position, topical applications—are hypnotic.

Sleep is accompanied by cerebral auemia and systematic cutaneous vascular dilatation. Any method which produces these effects will tend to the production of sleep. When these all fail, and often they do, hypnotics must be resorted to. The safest only should be chosen; they are chloralamide, pellotine, paraldehyde, and trional.

The abuse of hypnotics comes from two sources: (1) careless and ignorant physicians, and (2) conscienceless prescribing druggists. The careless physician prescribes for the symptom insomnia, little caring whether it be due to cerebral degeneration, organic cardiac disease, obstructive pulmonary disease, latent gout, or functional intestinal derangements of hysteria. The ignorant physician uses opium or its alkaloids, not knowing that these are narcotics, clubs a patient into insensibility, and calls it sleep. Here commences the opium habit, or, not believing in "new-fangled" remedies, he keeps closely to chloral, and either adds to the list of chloral fiends or terminates the life of one who is suffering from an unrecognized heart lesion, the cause of the insomnia. Or, again, he may be a therapeutic nihilist—a polite name for the therapeutic ignoramus—and finding that drugs when administered by him have but slight beneficial effect, concludes that they have none at all, launches out with a combination of drugs, and succeeds in making his patient sleep because, with all functions overwhelmed, he can do nothing else.

The dangers of hypnotics are immediate (death) or remote (interference with nutri-

tion). The possibility of habit is always to be borne in mind. Druggists are responsible for a large share of the abuse of hypnotics. They openly prescribe hypnotics in doses far exceeding those considered safe, and further, repeat prescriptions containing hypnotic drugs even when the prescription distinctly forbids it. In England sulphonal is sold as openly and carelessly as are the ordinary necessities of life. With equal ease coffee can be purchased for breakfast and sulphonal for bedtime. The same is true in this country.

The only remedy lies with the physician. Let him study his *materia medica*, learn his therapeutics, and apply intelligently what he has learned. Then, and then only, may we get the best results with the fewest disadvantageous symptoms, do the most for our patients, and, after all, rest with a consciousness of duty well performed.—*Post-Graduate*, May, 1898.

#### PRESCRIPTIONS FOR ACNE.

The following prescriptions are given in the *Klinische Therapeutische Wochenschrift* of June 15, 1898:

- ℞ Pure resorcin,  $\frac{1}{4}$  drachm;  
Zinc oxide, 40 grains;  
Terra silica, 7 grains;  
Benzoated lard, 2 drachms.

Apply to the part twice a day.

Or,

- ℞ Beta-naphthol,  $2\frac{1}{4}$  drachms;  
Precipitated sulphur, 2 ounces;  
Vaselin and soft soap, of each 1 ounce.

This is to be rubbed on the face for fifteen or twenty minutes daily and afterwards to be removed and the part dusted with talcum powder; or we may use:

- ℞ Precipitate ointment, 1 drachm;  
Subnitrate of bismuth,  $\frac{1}{4}$  drachm;  
Ichthyol, 30 grains;  
Vaselin, 6 drachms.

Apply at night.

#### THE AFTER-TREATMENT OF NASAL OPERATIVE WOUNDS.

The *Post-Graduate* in a recent issue has an article by Dr. RICE upon this topic. He speaks of the importance of this subject, but covers the ground quickly. It is important that the nasal chambers should be as clean as possible before the operation. We have in mind, in this connection, principally wounds of the nasal septum made by cutting. A simple method of cleansing the

nose before making an incision is to spray with one- or two-per-cent. solution of cocaine, which reduces all swelling, and then the nostrils can be washed with the nasal douche cup and Seiler's antiseptic tablets, or Dobell's solution, or the nostrils sprayed with weak solutions—1 to 10,000 of mercuric bichloride, or of peroxide of hydrogen twenty-five per cent. Washing the nose before operation is reasonable, rather than absolutely necessary, because it is not possible to get the nasal chambers in an antiseptic condition.

The second important rule to be followed is never to leave a nasal operation uncompleted. Any piece of cartilage or bone, half detached, which is allowed to remain, furnishes a pocket, prevents proper drainage, and uncomfortable septic symptoms will surely follow. There are a good many difficult cases where we are required to remove cartilage and bone, but we must take the time necessary to leave a smooth surface, even though we have to apply cocaine, and work at the removal of the tissue several times during the one visit of the patient. If the tissue is removed in a cleanly, thorough manner, there will be no further trouble. In nineteen cases out of twenty, even if a small artery be cut into, bleeding ceases spontaneously after a few minutes. Keep the patient at your office until the bleeding has subsided. The patient is then instructed to blow the nose thoroughly to remove any pieces of cartilage or bone and the blood-clot which has formed. Then the nostril, and, in fact, both nostrils, may be filled with the compound stearate of zinc and boric acid powder. This is the protective covering which the author has found most useful in preventing septic absorption through the wound, and it should be insufflated into the nostrils twice a day, or three or four times after the cutting. He does not approve at all of washing the nasal chambers after operating, as it prevents healing and keeps the surface exposed to septic influences. The majority of cases of operation will do best by using the zinc and boric acid powder for a week or ten days after the cutting.

If the patient is kept at the office for half an hour after the operation we shall not be surprised by any secondary hemorrhages on the street. There are a few cases where the bleeding is so persistent as to require a tampon of some sort, but these are very few, and the case is always complicated by the use of any plug, because of the much greater

probability of septic manifestation. But if an artery continues to bleed, we must either insert cotton or gauze wet with some styptic solution, or apply the galvano-cautery point. It is difficult to apply the cautery where there is a great deal of blood, and we do not like the wound made by the cautery where the saw has been previously used. We should say the best method is to insert sterilized gauze moistened with a styptic solution.

There is not much use of removing the tampon before forty-eight hours have elapsed. When it is removed, the nasal chambers should be washed with an antiseptic solution and the wound covered with the boric acid powder. Leave a nasal wound alone as much as possible. The results of the procedure just described are, in the author's experience, very satisfactory.

#### APPENDICITIS.

The editor of the *Louisville Journal of Surgery and Medicine* for July, 1898, says that in the previous issue, in a few words, notice was made of the fertile subject of appendicitis. The discussion of the papers on this subject in the Surgical Section of the American Medical Association, at Denver, was telling emphasis to the criticism made. Careful, clear-thinking, experienced heads insistently declared for opposing views, while there was the usual corroboration of both sides by the less weighty and less informed. Not a little of the spirit shown was sharp, probably bitter, and possibly at times even personal. We are all somewhat prone to defend our own views, and seek the bubble, reputation, with our own mouths. It was a question if the discussion did any good; it is almost a certainty that it did harm. Radicalism fails to convince the courageous conservative; it leads to danger the incompetent and vacillating; it discourages and routs the expectant and hopeful. In questions which involve not only life and death, but as well the reputation of the surgeon, the consent of the patient, facilities for success, etc., the theoretical must yield to the practical. Even if we accepted the dictum that a tender appendix should always be excised—though a congested liver, a painful kidney, a swollen spleen, an inflamed intestine may be allowed to declare its course—there must arise the reflection that practically such radicalism can never become popularly accepted, hence to urge it is to discourage rather than promote concert of action. In principle it is true that an

offending appendix is better out, not because it is always a source of danger, but because no judgment can declare when it is not; but in practise it is equally true that the best interest of the patient cannot always be served by radical adhesion to fixed laws.

Here, as elsewhere, the survival of the patient is through the fittest of conditions. These conditions must be controlled by the judgment of the surgeon. To obtain definite data, a point of departure must be agreed upon. It is clear not ten surgeons in this country operate on all cases of appendicitis as soon as the diagnosis is made, however much they may desire to do so. Many of the remainder who follow these ten in theory are far behind in practise. The immense majority are conservative in practise, whatever may be their theory. The general practitioner is utterly unconvinced. Between these two extremes is fixed the great gulf of death from indecision and neglect.

An eminent operator said in this discussion: "There can be no compromise!" But is it true? Do not arbitration, concession, daily and hourly in our lives protect and strengthen both our dignity and our security?

Not only is a compromise advisable, but at present it is unavoidable, and is entered into every day by the very radicals who oppose it.

The general practitioner having arrived at a diagnosis will rarely willingly call into consultation the surgeon who he knows has already made up his mind; who he knows will not *consult* with him, but will dictate an operation in a lesion he himself admits will recover without it three times out of four. Such uncompromising absolutism not only humiliates the physician, but scares both him and his patient away till the time of safety is past.

Though it is true in skilled hands, under favorable conditions, an operation in all cases at the time of diagnosis will probably secure the highest rate of recovery, yet it is true this course is so impracticable we must seek the most acceptable compromise upon which common ground the best results can be secured. This ground we believe to be about the following, as laid down by the writer in a discussion of this subject before the Tri-State Society at the Nashville meeting in November, 1897:

1. All cases which are of the so-called fulminating form demand immediate operation.
2. Primary cases with moderate pain, temperature and circulation may (not always with safety) be watched for twenty-four to

thirty-six hours. If not improved or stationary after this time, operation should be insisted upon.

3. In recurrent cases more circumspection is demanded and little delay permissible.

4. Trial of operation should not be refused even in general septic peritonitis from appendicitis.

The editor is constrained to say again, as he said in the last issue, that the achievement of better results in appendicitis lies less in the line of improved surgery than in the education of those having the case first in hand. When the family physician, anxious for the welfare of his friend, the patient, and uninfluenced in nine cases out of ten by either prejudice or jealousy, clearly understands the essentials of pathology and is assured that certain easily ascertained symptoms and conditions demand a defined step which the best hope and prospect attend, then and then only will imperfect cures and the unnecessary mortality of this frequent and terrifying lesion be reduced to the minimum.

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*THE TREATMENT OF INCONTINENCE OF  
URINE IN CHILDREN WITH THE  
LIQUID EXTRACT OF RHUS  
AROMATICA.*

In a recent issue of *Treatment* we find that FREYBERGER has used this drug with great success. He gives us a brief summary of the thirty cases of enuresis which he has treated with rhus aromatica.

In all cases spoken of as "cured" at least nine months have elapsed since enuresis had occurred for the last time.

Of the thirty patients treated with rhus aromatica, twelve are boys and eighteen girls; their ages vary from three to eleven and a half years.

At the time when treatment was begun one child suffered from anemia, two from rickets, one from rheumatism, two from chorea, five from morbus cordis, five from large tonsils and adenoids, one from somnambulism, one from pulmonary tuberculosis, and one was microcephalic; while in eleven children no concomitant affection could be found.

One boy suffered from diurnal enuresis; five boys and fifteen girls presented the combined (or continuous) form of enuresis.

The average duration of the treatment was forty days—thirty-five days in boys and forty-five in girls.

The first signs of improvement occurred

on an average on or about the seventh day of treatment; the earliest on the third, the latest on the twenty-third day.

Thirty-three days on an average were sufficient to produce a permanent cure, fifty-three days to effect a permanent improvement.

Eleven boys and seven girls were permanently cured; one boy and nine girls were permanently relieved; in two girls no improvement could be achieved. A relapse occurred in three girls after an interval of some months.

A temporary exacerbation of the enuresis was noted in eight cases, three boys and five girls; it occurred during or towards the end of the first week in five cases, and during the second week in three cases. While this exacerbation lasted the patients not only wetted their beds two or three times every night, but the quantity of urine passed into the bed each time was considerably increased. This interesting, though somewhat unpleasant, phenomenon lasted from four to six days, and in all cases terminated rather abruptly. During this period of flooding the urine was always very pale; its specific gravity varied between 1002 and 1007. Considering the great disappointment which parents must necessarily feel at this apparent change for the worse, the author made it a rule to tell the parents beforehand that such a recrudescence might possibly occur, but that it would not last long, and in all probability would soon be followed by a decided improvement.

It would be rash to claim for *rhus aromatica* the qualities of a specific in the treatment of enuresis in children as long as our knowledge of this drug and its action is based upon the results observed in barely one hundred cases on which reports have been published; but so much may be said in its favor that it appears to be as efficacious as *belladonna*, that it may be given for however so long without the slightest ill effect, and that good results may be obtained with it where *belladonna* proves ineffective.

The astringent taste and disagreeable odor of the liquid extract of *rhus aromatica* are sufficiently disguised by *syrupus aromaticus*.

The dose employed was: Five to ten minims for children two to five years old; fifteen to twenty minims for older children.

A very convenient formula is the following:

- ℞ Ext. *rhus aromaticæ* fl., 10 minims;  
Syrup. *aromatici*, 20 minims;  
Aq. *distillatæ*, ad 1 drachm.

S.: This amount to be given three times a day.

#### THE SALICYLATE OF METHYL IN THE TREATMENT OF RHEUMATISM.

CATRIN in the *Journal de Médecine de Paris* of June 11, 1898, thinks that the usefulness of salicylate of methyl in relieving the pain of acute articular rheumatism is incontestable. It relieves the pain in his opinion more rapidly than does the salicylate of sodium, although it does not reduce the fever as does the latter drug. In his experience it has been an infrequent occurrence to find that the drug materially disordered the stomach. The doses which he commonly employs are stated to be as much as one ounce a day, but we doubt very much whether the ordinary case could possibly ingest this quantity.

In regard to the use of the salicylate of methyl locally, the author thinks that bands of tarlatan soaked in salicylate of methyl may be wrapped around the joint and covered by an impermeable dressing, with great advantage to the patient.

#### STRYCHNINE IN ALCOHOLISM.

FEDEROFF (*Revue de Thérapeutique Médico-Chirurgicale*, June 1, 1898) has used strychnine in twelve cases of alcoholism with the following results: He believes that the catarrhal processes associated with this condition are rapidly ameliorated and that neurasthenic tendencies are favorably influenced. Thus insomnia and other grave nervous troubles rapidly disappear, the strychnine seeming to produce sleep, so that the patient rested an ordinary length of time for five or six days. The strychnine also seemed to dissipate the nervous unrest of the patients, relieve the pains of which they complained, and in this way aided in producing a cure. To this extent he believes that strychnine is a cure for the alcohol habit, but he does not think that it has any definite specific influence. [This conclusion we think to be correct.—ED.]

#### EXTRAORDINARY CASE OF HORSE-BITE; THE EXTERNAL EAR COMPLETELY BITTEN OFF AND SUCCESS- FULLY REPLACED.

The following interesting case is reported by Dr. BROWN in a recent issue of *The Lancet*:

On March 2, 1898, at about 4.30 P.M., when present at an auction, he was asked to attend to a boy, aged fourteen years, whose ear had been bitten off by a vicious horse. He presented a hideous appearance, the greater

portion of the pinna, together with a semi-circular flap of an inch radius from behind the ear, having been bitten off, leaving only the tragus with a quarter of an inch each of the helix and lobule. Although the case looked so hopeless (as regards disfigurement) he determined to make an attempt to save the ear, as the patient could be no worse off if the attempt failed. He asked for the ear, and after about ten minutes' search it was brought to him, having been found near the horse in the stable yard. It was of a dirty drab color and the posterior flap was curled up in a roll. He had no instruments or dressings with him, and it would have taken half an hour or more to procure them, which delay would have rendered the attempt to preserve the ear useless. He therefore procured some common needles and thread, and after washing the ear in warm water he proceeded to sew it on by inserting a suture above and another below, followed by three behind and three before. The posterior flap had to be unrolled before he could stitch it, and owing to the needles being straight there was great difficulty in placing the sutures in the concha and the fossa of the antihelix. He then placed a roll of cotton-wool behind the ear to support it, and having wrapped it in cotton-wool and covered it with a silk handkerchief sent the boy home. As soon after as possible he removed as much of the wool as he could without disturbing the wound, and after dusting the surface with iodoform, wrapped the ear in cotton-wool and Gamgee tissue.

On March 7 he removed the dressings, washed the ear with a warm solution of bichloride of mercury (1 in 1000), dusted the surface with iodoform, wrapped the ear in iodoform gauze, and packed it round and covered it with cotton-wool. On the 10th he renewed the dressings and removed the sutures. On the 14th a small portion of the lobe sloughed away. On the 16th the patient looked rather anemic and felt weak, so he was given a mixture containing sulphate of quinine and tincture of perchloride of iron. The same treatment was adopted throughout, the dressings being renewed every second or third day until April 7, when they were allowed to remain on until the 12th, when the ear was completely healed. The patient's diet consisted of plain food, together with beef tea, eggs, etc. He is a healthy, intelligent lad, who has survived several accidents, his body being covered with scars from burns. On one occasion it

was necessary to transplant six skin-grafts from the calf of his leg to his thigh to replace skin which had been destroyed by burns.

This case, the author considers, shows what valuable results may be brought about by antiseptic treatment and making prompt use of whatever comes handy when the proper instruments, etc., are not available.

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*THE INFLUENCE ON THE BLOOD OF  
SYPHILITICS PRODUCED BY INTRA-  
VENOUS INJECTIONS OF  
MERCURY.*

In *La Presse Médicale* of May 18, 1898, LINDSTROEM contributes an article upon this subject. He believes that intravenous injections of mercury are of very great value when it is necessary to put a patient under anti-syphilitic treatment of a heroic character. After quoting a good deal of the literature on this subject he proceeds to give us the results of his treatment. Thus in one case, a soldier twenty-five years of age suffered from a chancre, followed by a discrete roseola. Thirteen intravenous injections were practised. Seven of these consisted in the use of one-sixtieth of a grain of corrosive sublimate. In six others one-thirtieth of a grain was used at an interval of six days. Under this treatment the quantity of the red cells increased 500,000 after the early injections, and this augmentation increased as the injections were continued. After as much as one-twentieth of a grain was injected the corpuscles rose to 6,620,000, but after the injections were stopped the quantity of the red cells diminished considerably. Along with the augmentation in the quantity of the red cells there was a coincident diminution in the intensity of the syphilitic eruption. When subcutaneous injections of benzoate of mercury were used the number of red cells did not increase as they did after intravenous injection. The quantity of hemoglobin was increased and continued to increase under the intravenous treatment. The white cells were decreased in number by this treatment. The ordinary flow was increased by intravenous injections and the quantity of urea equaled one and a half ounces a day, but after the seventh injection diminished in quantity.

In regard to the elimination of mercury the author found that it commenced in two hours after the intravenous injection, the maximum occurring after eight hours. An analysis of urine after twenty-four hours showed the

presence of mercury. He therefore concludes that minute doses of mercury introduced directly into the blood increase the quantity of hemoglobin in the red cells, diminish the white cells, but do not very materially influence the syphilides. In still another case a patient of twenty-two years, with an intense roseola and polyadenitis, received subcutaneous injections of corrosive sublimate, thirty-one being given during the space of forty-five days. Under the use of these subcutaneous injections the red cells markedly increased, but equally good results with intravenous injections did not seem to be obtained.

After quoting other cases this author concludes that the direct introduction of mercury into the blood exercises a most useful influence and that improvement takes place almost at once. Small doses should be given at first and gradually increased. If, however, too large doses are used, or it is continued too long a time, mercurial anemia may develop. In severe cases, therefore, it would seem that this method of treatment is advisable. It is hardly necessary to add that careful antiseptic precautions should be maintained.

#### THE THYROID THERAPY.

The *Northwestern Lancet* of June 15, 1898, has in it an article on Thyroid Therapy by HALDOR SNEVE. The conclusions which he reaches are as follows:

1. The thyroid gland produces a secretion of the greatest importance to the metabolism of the body. Absence of function produces cretinism if congenital, myxedema if acquired.

2. Simple hyperplasia (simple goitre) does not produce marked pathological disturbances, but the writer believes it to be a larvated form of exophthalmic goitre, and that so-called "nervousness" can be found in the vast majority of cases.

3. Hyperplasia associated with disturbance of the cervical sympathetic is the disease known as exophthalmic goitre.

4. Surgical interference in diseases of the thyroid gland should be limited to the removal of neoplasms; thyroidectomy in exophthalmic goitre is unphysiological, irrational, and dangerous.

5. In the majority of cases of exophthalmic goitre, medicinal hygienic treatment, rest, galvanism through the neck (two to five milliamperes), tonics, sodium phosphate and thymus gland will effect amelioration.

In cases refractory to medical treatment where life is threatened, section of the cervical sympathetic should be practised.

6. Many cases of neurasthenia are cases of masked exophthalmic goitre and should be treated accordingly.

7. Thyroid therapy is specific in sporadic cretinism, myxedema, and simple goitre, and removes obesity.

8. Thyroid extract increases the unpleasant symptoms in exophthalmic goitre, and is a reliable test also in the masked form of this disease.

#### THE TREATMENT OF HEMORRHAGIC NEPHRITIS.

The *St. Petersburger Medicinische Wochenschrift* of May 16, 1898, contains an article by KRAMER, of Dorpat, in which he mentions the dietetic and hygienic treatment of chronic hemorrhagic nephritis and the use of ergot, tannin and citric acid for excessive hematuria. He then goes on to describe how he has used methylene blue with advantage in such cases, and cites a case of a man of sixty-four who came to him suffering with swelling of the lower extremities, loss of appetite, feeble heart, and the dark red colored urine due to the presence in it of blood coloring matter. Tannin, calomel, acetate of lead and salol did not exercise any favorable influence. Kramer then decided to give the patient methylene blue, using two to three grains once, twice or thrice a day. As a result of this there was a decrease in the hemorrhagic evacuation and in the quantity of albumen which the urine contained. He detailed three other cases in which a similar method of treatment was resorted to with advantage and believes that methylene blue is our most efficient agent in controlling rapidly and absolutely the blood in the urine.

#### THE GOOD EFFECTS OF IODIDE OF ARSENIC IN INFANTS SUFFERING FROM SCROFULOSIS.

The *Journal de Médecine de Bordeaux* of June 19, 1898, contains an article by SAINT-PHILIPPE upon this subject, a subject which is well known to medical men in general. He points out that under the use of the iodide of arsenic improvement takes place in the condition of the skin, the mucous membranes, the various viscera, and finally that the glandular condition is ameliorated. Even in those forms of skin disease which are infectious, as for example impetigo, he finds that the use



of iodide of arsenic is of great value. He prescribes it in the following form:

- ℞ Iodide of arsenic, 7 grains;  
Distilled water, 1½ ounces.

Dissolve and give 5, 10, 20 or 30 drops of this solution a day, according to the age of the child.

As the remedy is an active one it is wise, in his opinion, to commence with a small dose—for example, only a drop may be given morning and night, and this dose gradually increased. In very susceptible individuals dyspeptic symptoms may arise and slight nausea may develop; diarrhea may also come on, and in this case the dose must be cut down.

#### THE TREATMENT FOR INTESTINAL WORMS.

In the *Revue de Thérapeutique Médico-Chirurgicale* of June 1, 1898, LYON tells us that the patient should have nothing for his dinner or supper save a bowl of milk or soup. The bowels should also be carefully washed out in the evening by an injection and the vermifuge taken, a purgative and rectal injection being used the next morning. He believes that the sulphate of pelletierine in the dose of two to four grains is best given in a mixture containing tannin; thus he prescribes:

- ℞ Sulphate of pelletierine, 3 grains;  
Tannin, 15 grains;  
Distilled water and simple syrup, 2 ounces;  
Essence of orange, 10 drops.

This is to be taken in two doses at half-hour intervals. Ten minutes after the ingestion of the second dose a large draught of Hunyadi water should be taken. Such a prescription should not be given to a pregnant female, nor to very old persons. In other instances the following prescription may be used:

- ℞ Oleoresin of male-fern, 1 to 2 drachms;  
Syrup of ether, 1 ounce;  
Mint water, 1 ounce;  
Syrup of acacia, 3 ounces.

To be taken in two doses two hours apart. Or the oleoresin of male-fern may be given in capsule with calomel, seven grains of the oleoresin and one grain of calomel to be put in one capsule; twelve to sixteen of these capsules are to be prepared, and two should be taken every ten minutes. One hour after the last capsule is administered a purgative may be given.

Lyon points out the fact, which is well known to therapeutists, that castor oil should not be given after male-fern as it favors the intoxication with filicic acid. For the re-

moval of round worms Lyon advises the use of santonin combined with calomel; two to five grains of santanin may be given with a grain or two of calomel, divided into three cachets. For the removal of seat-worms Lyon suggests injections with salt water, the use of castor oil or of thymol (three grains in two ounces of olive oil). In other instances glycerin suppositories may be used with advantage, or, again, a solution of boric acid may be employed.

#### THE INFLUENCE OF FORMALDEHYDE UPON DIGESTION.

The remarkable properties of formaldehyde as an antiseptic have caused FINOSSIER to study its value as an intestinal antiseptic and also to determine its influence upon the digestive ferments. In regard to the digestion of starches he took a series of flasks and placed in them ten cubic centimeters of starch-water, to which he added two cubic centimeters of saliva and ten cubic centimeters of a dilute solution of formol. These flasks were then exposed to the temperature of the body. Three hours afterwards it was found that the formol exercised a feeble retarding influence upon the conversion of starch into sugar. In regard to the amylolytic power of pancreatic juice he found that there also occurred a slight retardation. Upon the action of pepsin in converting into peptones considerable delay took place, and concerning a similar action of trypsin the same results were obtained. Upon the coagulation of casein formol exercised a distinct inhibitive influence: thus in the proportion of 1.5 in the 1000 the time necessary for coagulation of caseation was twenty-five minutes, whereas when no formol was used it was but two minutes. It would seem, therefore, in general terms that formol exercises an inhibitive influence upon digestive processes, but that this is not sufficiently marked to prohibit its use in those cases in which it seems advisable to administer it as an intestinal antiseptic.—*Revue de Thérapeutique Médico-Chirurgicale*, June 1, 1898.

#### THE INTRANASAL USE OF MEDICATED OILS OR OILY FLUIDS.

A recent issue of the *British Medical Journal* has in it an article by Dr. EWART on this interesting subject. He says that in diphtheria the occasional occurrence of a long period of infectiveness after apparent recov-

ery has suggested an important precaution, that of keeping, throughout the attack and for some time after recovery, the nares protected by some antiseptic and healing application. For some years the writer has made this a rule of nursing in his cases, and carbolized oil (1 in 60) has been systematically introduced either by the swab or by the dropping method. A very small quantity of oil repeated twice a day will suffice. It is not improbable that after the pharynx has cleared itself of membrane some of the infection may linger in the large mucous tract above, especially in the absence of any cleansing treatment, and that in reported instances of late infectiveness the mischief may have really resided in the nasal fossæ. At any rate, it is believed that this precaution, if carried out methodically, might materially diminish the risk of a late transmission of diphtheria during convalescence.

In affections of the nostrils, nasopharynx, and sinuses, the local application of oil does not appear to have occupied the therapeutic position which some of its advantages seem to deserve. It is not referred to in current literature, and does not seem to have been practised with frequency, if at all. This circumstance may have been the result of the only drawback which the method presents, namely, that it is somewhat unpleasant to sensitive persons, and unless used with discretion, apt to nauseate. On the other hand, its simplicity and its efficacy in fulfilling the objects for which it is prescribed are recommendations. Its good results are manifest chiefly where it is locally applied to the mucous membrane affected; but it is also beneficial in those respiratory affections in which the trachea and the larger bronchial tubes suffer jointly with the nose and nasopharynx, and also in some cases of neurotic dyspnea or asthma in which the nose is the seat of irritation. Its action in these cases would be one partly reflex, and therefore distinct from the results obtained by the strictly local method of intralaryngeal injections continued for long periods; moreover, it does not claim to cure the affections in question, but merely to alleviate their symptoms and to obviate the recurrence of attacks.

The same mode of application is suitable to all cases. A small quantity of carbolized oil (1 in 60), flavored with some essential oil such as that of almond or bergamot, is introduced into the nostrils whilst the patient is lying down with the head thrown back. A

small glass syringe fitted with a spray nozzle is best, but failing this a common nozzle will answer; or the oil may be simply dropped into one or both nostrils. The patient should be directed to turn the head from side to side to facilitate the spreading of the oil. Where the object is local treatment of the frontal sinuses, it will be necessary to throw the head still further back and to keep it in that position for a minute or two. If the quantity of oil should have been excessive, or if it should have been dropped instead of sprayed, it will trickle down the back of the throat, and this often excites some nausea. The quantity which has generally been used is about a saltspoonful, or fifteen drops, but even a less quantity may be found useful, and the objection stated may then not arise. The oil may be made the vehicle for various remedies. Recently, for instance, in a case of recurring epistaxis, in which the source of hemorrhage was thought by the patient to be in the left frontal sinus, tannin was added to the oil, and the latter was felt by the patient to reach the spot in question. In many cases stimulation is wanted quite as much as, or even more than, mere protection. The author has therefore availed himself of a well known formula:

Menthol,  
Thymol, 22 gr. j;  
Ol. olivæ, q. s. ad 3 jss.

This has been preferred by some patients to the oil, and in others has been found efficacious where the latter did not relieve the symptoms. The stimulating solution is especially useful in neurotic cases.

The conditions in which the local use of medicated oil may be found of value are the following:

In continued pyrexia the drying and caking of secretion in the nasal cavities are a source of much discomfort; the mouth often has to be kept open in consequence, and the dry tongue of fever is the result. In these cases, as in the following, the quantity of oil required is very small provided it be thoroughly applied, and this can be done by introducing a thin swab of twisted cotton-wool or of lint charged with the oil.

Nasal dryness and fetor are also apt to occur in all varieties of continued hurry of breath, but particularly in that which belongs to heart disease with broken compensation. Among valvular diseases, advanced mitral stenosis, with or without associated regurgitation, in which there is considerable venous congestion, is that most often accompanied

by these symptoms. The ozena-like odor was formerly supposed by the writer to be dependent upon some local lesion special to this disease; but it is probably explained simply as a result of permanent congestion and of the drying of a mucous membrane lined with secretion. The comfort to the patient and to the physician arising from this treatment is well worth the small trouble which it gives.

Among the obstructive and nasopharyngeal troubles permanent or progressive structural defects, such as narrowing of the passages, polypi, adenoid growths, etc., are curable only by surgical means. But striking alleviation, of any superadded congestion or catarrh may be brought about by the use of oil, which is particularly indicated for impacted foreign bodies. Much benefit may accrue in children suffering from large tonsils or adenoid growths, and from nocturnal restlessness and cough, if the mucous membrane can in this way be kept free from irritative congestion, swelling and dryness, by protecting from the results of open-mouth breathing. The same applies in the adult, where the nostrils are blocked by a polypus or by secretion and swelling.

Dry nasopharyngeal catarrh and granular pharyngitis are both susceptible of much relief. The treatment is specially adapted to cases in which dense, adhesive mucus forms scabs on the pharynx, and leads to the well known distressing symptoms; and as a protecting agent it also may be of much service in granular pharyngitis. Acute catarrhal pharyngitis, if submitted to this local treatment sufficiently early, when the sore, raw feeling, or the stiffness and pain limited to one spot, with which the affection often begins, are first perceived, would probably be manifestly relieved, but there are no cases to report. This might be the means of checking the usual extension of the catarrh to the mucous membrane of the trachea and large bronchi.

Bronchial catarrh of the large tubes, or common chest cold, is frequently the sequel or the concomitant of nasopharyngeal catarrh. This conjunction led the writer to try the treatment in his own case, and he was much impressed by the relief afforded, not only to the nasal catarrh, but to the chest symptoms, including retrosternal pain and rawness, painful cough and expectoration. He has since then observed equally satisfactory results in other cases.

It is difficult to explain how a local appli-

cation in the nose can relieve the chest, since it is doubtful whether the oil, although spreading so rapidly, can find its way downwards into the air passages. The influence is probably one brought about by associated nerve agencies. If, therefore, we regard the resulting relief as one merely reflected from the pharynx, we can hardly expect that the nasal method will be of much service in bronchitis of the smaller tubes. On the other hand, the direct application of oil might perhaps be of use, and one at least of the cases narrated is an instance of the success of the treatment in the bronchopneumonia of diphtheria. The results noted from the indirect or intranasal method cause us to inquire again whether the more frequent use of intralaryngeal injections might not be of advantage. Hitherto they have been chiefly employed in chronic pulmonary affections; but if directed to the cure of the more acute catarrhs of the large tubes their efficacy might be more manifest, and probably many a protracted chest affection might be avoided or considerably shortened in duration. It may be thought that this is too powerful an engine to apply to small work; but the intralaryngeal injections are really not troublesome to the patient if successfully performed, and their performance presents no difficulty to any one familiar with the laryngoscope.

On the other hand, it would be premature, without previous trial, to recommend intralaryngeal injections in bronchopneumonia, and their desirability in acute bronchitis must also remain an open question till further experience has been gained.

It is well known that in a proportion of cases of asthma the affection is connected with some nasal trouble, usually a congestive hypertrophy of the mucous membrane; and the opinion has been held that asthma itself is a congestion and swelling of the mucous membrane. The late Sir Andrew Clark took that view. Only a proportion of these cases yield to local treatment by the galvanocautery, or to local medication such as that by perchloride of mercury, carbolic acid, and quinine, formerly recommended by Sir Andrew Clark. Among the local methods which might still be resorted to in the unrelieved cases the present one suggests itself for trial.

#### ACUTE PNEUMONIA IN CHILDHOOD.

In the *Edinburgh Medical Journal* for August, 1898, CARMICHAEL tells us that we have, as yet, no special treatment for acute

pneumonia. The antitoxin has not yet been discovered, but this is a line of research well worthy of attention. All we can do is to treat each patient according to the special needs of the case, meeting symptoms as they arise by rational means. In all cases hygienic measures, including diet, are all-important. The patient should be in a well-ventilated room of mean temperature. The author finds a tent-bed invaluable, hung round inside with wet towels sprinkled with eucalyptus or creosote, or other antiseptics. In very severe cases, with much cyanosis, the inhalation of oxygen mixed in the air of the tent often proves of signal benefit. The dieting should be conducted on the general principles applicable to all febrile affections—light, easily digested nutriment, in such quantity as the patient can digest. Overfeeding is harmful, as likely to bring on vomiting and diarrhea, which are complications always to be dreaded. Continuous and routine poulticing is now discarded, poultices being used as other therapeutic means, according to the necessities of the case. A stimulating sinapism occasionally applied all over the chest for half an hour or an hour is often very serviceable, this being replaced by a pneumonia jacket of Gamgee tissue; when the temperature is high and the skin is not acting, a moist continuous poultice of soft flannel and jaconet, moistened with boracic solution, is very grateful to the patient. By keeping up a local as well as general diaphoresis, relief is given to the engorged lung, whose blood-vessels are in a state of hyperemia and permanent dilatation, the cutaneous blood-vessels, which are in the opposite condition of high tension, being thereby relieved.

As no drug yet known has any special influence on the disease, we must treat the patient by endeavoring to assist Nature in her efforts to maintain a compensatory physiological balance in the functional activity of the various organs. In the reference already made, in regard to dieting, the writer has indicated the necessity of due attention to the digestive functions. The respiratory embarrassment can be best relieved by keeping up a continuous local and general diaphoresis, as already indicated. This should be assisted by the exhibition of non-depressing diaphoretics, such as liq. acet. ammoniæ and sp. etheris nitrosi, a combination which has well stood the test of experience. The nitrous ether is most valuable in relieving the general vascular tension apart from that of the lung. Alcoholic stimulants are of

great value, especially in bronchopneumonia. They must be administered in suitable doses, according to the exigencies of the case and the state of the pulse. Next in importance as a stimulant the author regards strychnine. The indications for its use are similar to those of alcohol, and it may be given with advantage at the same time. He regards it as of more value in the acute respiratory affections of children than in adults, on account of its action on the cardiac respiratory centers and cardiac ganglia. In children it is well known that the nerve tone is more rapidly lowered from acute disease than in adults, hence the great importance of anticipating this by the timely use of such a remedy.

The use of belladonna in certain cases of acute respiratory affections of infants is one of the most striking therapeutic facts the writer knows of. The cases in which it is indicated are those, particularly of infants, attacked with acute congestive bronchial catarrh in the early stages. It is well known that in these congestive conditions, which are accompanied by more or less bronchial spasm and collapse of the lung, its action in soothing the afferent and efferent nerves in the bronchial walls, and stimulating the respiratory center, is most marked. It has no beneficial effect in the later stages where the alveoli are involved, but its timely use in earlier stages of the disease is attended with striking results.

The author's remarks on the drug treatment of acute pneumonia would be incomplete, he says, were he not to refer to digitalis, and he only does so to condemn its use as a routine remedy. He does not for a moment undervalue the importance of employing this drug in cases where its use is clearly indicated—feeble pulse with weakness of the left ventricle and diminished arterial tension. Such conditions obtain occasionally, but not frequently, in the pneumonia with large lobar consolidation. On the other hand the condition of the arterial system clearly contraindicates its use. The state of the blood-vessels in the affected part is that of distention and paralysis, the systemic arterial circulation being in a high state of tension, with an enfeebled and distended right heart. In such cases we have no proof that digitalis has any power in restoring the tone of the blood-vessels in the affected part. It cannot act on the right heart without more powerfully (on account of the greater muscular area) stimulating the left ventricle to congest the affected lung by

"diminishing the vascular area" (Loomis). Heart failure in lobar pneumonia would appear to be due to two principal causes—the depressing effect of the toxins on the nervous center, and of a high temperature on the heart muscle. If this be so, there are no indications for digitalis, but rather for such remedies as act directly by stimulating the nerve center on the one hand, relieving the local hyperemia on the other. He believes that local and general diaphoresis, occasional purgation, and remedies which stimulate the cardio-respiratory centers, are the most appropriate means of combating this condition.

The use of large doses of phenacetine or antipyrin is in the author's experience not useful, often harmful, in both forms of pneumonia. In small doses, however, they are often of service in allaying nervous irritability and restlessness. In hyperpyrexia we must trust to the wet pack, or tepid bath, or the application of cold by ice-bags, or otherwise.

The author regrets to find that even yet in these more enlightened days such remedies as ipecacuanha, tartar emetic and squills are prescribed by some physicians. There is no indication that he knows of, but a distinct contraindication, for their use. Children suffering from pneumonia require rather stimulation than the exhibition of depressing remedies such as these.

#### INTRACEREBRAL INJECTIONS OF ANTI-TOXIN IN THE TREATMENT OF TRAUMATIC TETANUS.

Trustworthy as the antitoxin treatment has shown itself to be as a preventive of tetanus, it is comparatively of little avail once the disease has become established. Pondering on this state of things, some months ago E. Roux and A. Borrel came to the conclusion that the frequent failure of the antitoxin in cases of developed tetanus was due to the failure to catch up with the toxin, so to speak. In other words, they said to themselves, while the antitoxin was floundering about in the blood the toxin was doing its deadly work on the nervous centers; the two, although so close, did not come in contact.

To remedy this defect of the treatment, they reasoned it would be necessary to inject the antitoxin into the central nervous system itself. But the soundness of this view had first to be tested experimentally. Accordingly, forty-five tetanized guinea-pigs were treated with intracerebral injections of antitoxin, and thirty-five of them recovered.

Seventeen others were treated with the antitoxin injected simply under the skin, but in far greater amounts, and only two of them survived. Seventeen check guinea-pigs, not treated with the serum, all died. Roux and Borrel reported on this matter at the recent Madrid International Congress of Hygiene. Their theory has now been successfully put into practise on the human subject, a patient of A. Chauffard's, who in conjunction with Quenu reports the case in the *Presse Médicale* of June 18, 1898.

A healthy lad sixteen years old, a gardener, was injured by a greenhouse sash falling on his hand and crushing the tips of the index and ring fingers. This was on the 8th of April. Four days later the lad presented himself at the Cochin Hospital, where he was treated daily as an out-patient until April 22, when he complained of trouble with his jaw and also of a tooth. The dentist found no trouble with the boy's mouth, but suspected tetanus. Nevertheless he prescribed only a carbolized gargle. On the following day the symptoms had become more pronounced, and the patient was advised to enter the hospital. This he did not do at once—in fact, not until the 25th. He then had decided trismus, with the sardonic grin, but the muscles of deglutition and those of respiration were not yet affected; his intelligence was undisturbed, and there were no paroxysms. In the course of the day he received twenty cubic centimeters of antitetanic serum under the skin. On the following day (the 26th) there was well-marked tetanus of the trunk, but the limbs were still free from contracture.

M. Quenu was now called upon to do the operative procedures required for carrying out the Roux-Borrel treatment. The patient's entire head was shaved, aseptitized, and protected with a dressing. Anesthesia was induced with chloroform, and M. Quenu made a small curvilinear incision down to the bone on the right side, the middle of the incision falling in a line drawn vertically from the external orbital process and being eight centimeters distant from that process. The concavity of the incision was directed forward and downward. The little flap was dissected up, and a button of eight millimeters diameter was removed. The dura mater was incised, and the hypodermic needle was passed into the brain to the depth of five or six centimeters. M. Roux himself pressed the piston slowly, injecting between one and a half and two cubic centimeters of serum concentrated one-half (ten parts dried and

then redissolved in five parts), which he and M. Borrel had prepared on the spot. The process of injection, drop by drop, occupied about six minutes. No noteworthy phenomenon accompanied it. The cutaneous wound was closed with three sutures, and the same procedure was executed on the left side of the head. Occasion was taken of the anesthesia to treat the injured fingers radically. The entire operation lasted about three-quarters of an hour.

On the lad's emerging from the anesthesia, some improvement was noted at once, but, as is always observed in severe cases of tetanus that end in recovery, whether spontaneously or as the result of treatment, he still had to go through with a long persistence of the manifestations prior to the favorable turn. On the 29th he received twenty cubic centimeters of antitetanic serum, but this time subcutaneously, and the same amount again on the 1st of May; also ten cubic centimeters on May 2, and twenty on the 3d. It was not until the 8th that he showed decided improvement, and he sat up for the first time on the 18th. During all this time the antitoxin treatment was judiciously supplemented with nutrient enemata, injections of artificial serum, and the administration of sedatives.

The authors explain that the operation was practised at the level of the base of the second frontal convolution, in order to avoid injury to the psycho-motor centers, and yet admit of the serum being deposited near enough to them to find its way to the affected parts by diffusion. They do not seek to attach undue weight to this single case, but they properly insist on the severity of the disease and on the positive character of the evidence afforded in this instance. It seems to us that Roux and Borrel have now made a substantial advance in the serum treatment of tetanus.—*New York Medical Journal*, July 9, 1898.

#### THE TREATMENT OF CHRONIC NASOPHARYNGITIS.

The July issue of the *Memphis Lancet* has an article in it by SOMERS, of Philadelphia, on this subject. He believes it best to discuss our local remedies under the divisions of pigments, ointments, powders, sprays, and vapors. The value of pigments depends upon their accurate application to the area hypertrophied or the seat of the ulcer, should such be present. Under the head of pigments, turpentine with oil of anise makes a

valuable application, especially in acute exacerbations of the chronic affection; it may be diluted with lavender, and any of the essential oils may be used to disguise the odor, anise, as mentioned, being very agreeable to the majority of patients. This should be applied to the nasopharynx with the cotton tuft on a curved applicator several times weekly. In many cases it seems almost impossible to apply the drug on account of the irritable condition of the parts, the uvula immediately being drawn upward and backward as soon as the tongue depressor is placed in the mouth. In these cases a one-per-cent. cocaine spray will greatly facilitate the treatment, or in its place good results are obtained with a spray of five grains of menthol to the ounce of liquid cosmoline or any of the bland oils used for this purpose. A palate retractor is frequently of value, and although somewhat unhandy at first, one soon becomes able to manage it without any difficulty. White's self-retaining is the one the author uses, and he has found it very satisfactory, enabling one to apply the pigment to the proper area desired. It seems to be the custom to apply the remedy to the pharyngeal walls and vault without any evidence of the medicament reaching the part diseased; should the condition be due to ulceration of the posterior end of the middle turbinal, it is impossible in the general way of making local applications to reach the affected parts at all, and it is best to use the rhinoscopic mirror in every case where applications are made to the nasopharyngeal region.

As a stimulating absorbent the following has been found useful in many cases:

- R Iodine crystals, 10 grains;  
Potassium iodide, 20 grains;  
Menthol, 50 grains;  
Glycerin, q. s. ad 1 ounce.

M. Sig.: For local application.

Or the muco-purulent secretion may be materially diminished by:

- R Camphor,  
Carbolic acid, of each 30 grains;  
Menthol, 50 grains;  
Turpentine,  $\frac{1}{2}$  ounce;  
Albolene, q. s.

Sig.: The albolene, or any suitable oil, is added a drop at a time until one drop remains free in the bottom of the bottle.

Nitrate of silver in obstinate cases is valuable if applied to limited areas, and it may be used in solutions varying in strength from ten grains to saturation. As is well known, the application of weak solutions of silver to the mucous membranes is somewhat painful,

while strong solutions if carefully used cause no inconvenience; but caution should always be observed to see that there is no excess of fluid on the applicator and that it does not touch any part but that for which it was intended.

Ointments have not been used to any great extent in the nasopharynx, but they are very serviceable, as they remain for a considerable time after being applied and allow the drugs to exert a continuous action. They are applied in the same manner as pigments and various combinations may be used, the following being of service in the affection described:

- ℞ Ichthyol, 1 part;
- Zinc oxide, 10 parts;
- Wheat starch, 10 parts;
- Lanolin, 20 parts.

Many other combinations will readily be suggested by using pigments in this manner, and often better results are obtained with the ointments than with the latter form of medication. Powders are rarely of value, as they are apt to get into the larynx and produce violent attacks of coughing, even if the utmost care be used in their application, and at the same time a great objection is that it is impossible to apply them solely to the parts desired, as they cover the entire region and more or less obstruct the already diminished respiratory area. Of far more value and utility are the sprays, always being used before other local applications to remove mucus, etc., and they are serviceable to the patient as being readily used at home. With a coarse or fine spray we may apply any drug in solution that seems best suited to the individual case; the alkaline antiseptic spray or wash, depending on the method with which it is used, and known as "Seiler's," being representative in its class. Sprays may be used to cleanse the parts, as the one just mentioned, or as antiseptics, astringents, and sedatives, hamamelis representing the last class.

Vapors or nebulæ are generally used as inhalations for the various forms of laryngeal inflammation, but occupy a distinct and valuable place in the therapy of the affection described in this paper. Their value lies in the penetrating power they possess, the medicated vapor penetrating the recesses of the nasopharyngeal region and, when an oily base is used, remaining in contact with the tissues for some time after being inhaled. Nebulæ may be used either with or without the addition of steam, the choice depending upon the

result desired, and when the mucus is tenacious and clings to the vault of the pharynx, especially at the orifice of the Eustachian tube and adjoining fossæ, we find an alkaline steam vapor will readily cause the separation of the adherent secretions from the mucous membranes, and for this purpose the following will be found useful:

- ℞ Sodii bicarb.,
- Sodii baborate, 22 gr. x;
- Potass. bromide, gr. v;
- Aqua mentha pip., 3 ij;
- Aqua dest., q. s. ad 3 j.

Sig.: Use twice daily.

Inhalations may be used at any time during the day, provided steam is not mixed with them; should hot vapors be desired, the patient must not go into the air for at least one hour afterward, as the mucous membrane becomes relaxed and coryza almost invariably results. It is the best plan to use inhalations at the room temperature during the day and then direct the patient to steam the nasopharynx for five minutes just before retiring for the night; in this way all danger of coryza or of acute exacerbation of the catarrh will be avoided, and after this has been repeated a few times there will be no difficulty in removing the tenacious mucus. The following formula may be used at night as a stimulant; it acts by increasing glandular secretion and stimulating the parts to normal activity:

- ℞ Ammon. chlor., gr. xv;
- Tr. benzoin comp., 3 j.

Sig.: One-half teaspoonful in four ounces of boiling water.

There are a number of satisfactory devices to use vapors that are very useful in office work, while the patient may obtain a vaporizer especially made for this purpose, or the solution desired may be placed in a cup filled with boiling water; over this an ordinary funnel is inverted, and the medicated steam may readily be inhaled. It is essential to see that the patient allows the vapor to pass through the nasopharynx and out through the nose. Although this is usually more difficult to learn than the usual forms of laryngeal inhalations, still no trouble should be experienced on this point.

#### THE PECULIAR SUSCEPTIBILITY OF WOMEN TO THE TOXIC ACTION OF SULPHONAL.

POLLITZ (*Vierteljahrsschrift für Gerichtliche Medicin*, xv, 2; *Wiener Klinische Wochenschrift*, June 9, 1898) relates the case of a

woman who was treated very successfully for a puerperal mental affection with sulphonal, given to the amount of twenty-two and afterward fifteen grains daily for more than a year, with frequent interruptions of the treatment for weeks at a time. Finally symptoms of sulphonal poisoning appeared—deep-red coloration of the urine and diminution in the amount of that secretion, obstinate constipation, and loss of appetite. The case ended fatally, but it is remarkable that periods of notable improvement in the woman's condition preceded her death. At the post-mortem examination there was found extensive disease of the secernent epithelia of the urinary tubules.

Pollitz calls attention to the fact that the recorded cases of sulphonal poisoning have been in women for the most part. Among twenty-one cases, Schulz found that twenty were in women, and all observers have found that the victims of sulphonal poisoning were anemic to a certain degree. The inference seems reasonable, Pollitz thinks, that certain conditions of the blood, such as chlorosis, have a direct connection with the supervision of toxic phenomena under the use of sulphonal.—*New York Medical Journal*, July 9, 1898.

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*CORNEAL ULCERS, VARIETIES AND  
TREATMENT, WITH SPECIAL  
REFERENCE TO SUBCON-  
JUNCTIVAL INJECTIONS.*

WILLETTTS, writing upon this subject, says that in the treatment of corneal ulcers atropine is looked upon as almost a specific, when in reality it is only a preliminary step. It has no germicidal action, and has no bearing on the cure of the disease, excepting that of preparing the parts for reparative action. It paralyzes the accommodation, doing for the eye what a splint does for a fracture—puts the part in absolute rest, which is a recognized factor in the successful treatment of all disease. It relieves the local congestion, which, however, is a symptom only, and seems to have a special action on some varieties that is not applied to others. In phlyctenular keratitis, which is not dependent on micro-organisms, while atropine is not contraindicated it certainly is not indicated, and the patient may be spared the annoyance dependent on its use. This disease, principally one of childhood, is characterized by elevations of the corneal epithelium at the limbus, dependent on the congregation of

leucocytes at the peripheral nerve endings. It is readily cured by the yellow oxide of mercury of suitable strength, together with supportive treatment, in those cases of scrofulous diathesis, or cachexia, from unhygienic surroundings. Analogous to this form is keratitis fascicularis, which, like the former, commences at the margin of the cornea; but this, unlike the former, invades the cornea, generally in a parallel line, dragging after it a leash of blood-vessels, the arrangement of which is pathognomonic of this affection. It yields readily to the same treatment.

The serpiginous ulcers with hypopyon and other forms of corneal infection, such as onyx, require a more radical and prolonged treatment, the benefits of the actual cautery in these infections being infinitely superior to any other method. The author has never seen a single bad effect from its use, and has used it when the condition of the conjunctival sac would seem to contraindicate it. It is decidedly preferable to the Saemisch operation, which only relieves the tension at the expense of a new traumatism; the evacuation of the hypopyon being not essential, since its absorption is assured under proper treatment. The cautery at a red heat should be applied to the underlying edges of the ulcer, and in case of onyx penetrate it deeply, experience having taught him that the floor of the ulcer will undergo resolution with a thorough cleansing, or slight curettement. The cautery is a direct, immediate stimulant, and destroys the microbic area with which it comes in contact, instead of creating a new condition favorable for infection, as the Saemisch operation does.

All of these cases need atropine, hot water, and the systematic influence of mercury. The latter may be accomplished by any method consistent with scientific medicine. Lagrange and Formaget have employed mercuric cyanide by conjunctival injection in the treatment of panophthalmitis, Chavelereau in the treatment of vitreous opacities, and Dunn in hypopyon keratitis. E. H. Bernst prefers mercuric cyanide to bichloride, claiming for it a quicker and more complete absorption. He is in favor of the method. De Schweinitz, Baker and Ray concur in his opinion, while Stirling, Reynolds and Savage have had unfavorable experience with this method. Fernandez reports encouraging results in the treatment of trachoma by the subconjunctival injection of the permanganate of potassium. An injection of one-per-cent. solution of cocaine is first given, fol-



lowed in about twenty minutes by an injection of from one-half to one gramme of a 1:1000 strength solution of permanganate of potassium. The eyes are washed daily with an antiseptic solution, and in about eight days (or after the swelling has subsided) the injection is repeated. Mellinger and Bossaline introduced India ink beneath the conjunctiva of rabbits, and demonstrated beyond cavil that fluids so introduced follow the greater lymph channels and surround the entire globe; the amount of ink actually entering the eyeball being small in comparison to the amount injected. They believe that the fluids also connect with the suprachoroidal and intervaginal spaces of the optic nerve.

Abadie repeats his injunctions against bichloride solutions, especially when iodoform is used contemporaneously in purulent ophthalmia, on account of the evil effects on the cornea. Galezowski has abandoned the method, and Ray feels that he cannot depend on it exclusively.

The progress of medicine is not so much dependent on new discoveries as it is on the careful sifting of the evidence at hand and the elimination of its errors. Its gain has been one of principle at the expense of superstition, and to-day it is an exact science. The theory of subconjunctival injections must be an error, since it is incompatible with the first teachings of not only hypodermic medication, but all medicine. Mellinger and Bossalino's illustrated experiments, showing a section of an enucleated eye, in which India ink had been injected during life, and which shows the ink in the eye and surroundings, is interesting only because it shows the channels traversed, for it has no bearing on the efficacy of the method. That it was found in the eye and optic sheath should not occasion so much surprise as its absence in these parts would, since we know that were it not an inert, insoluble product, it would be found in every organ of the body.

Hypodermic medication is too well established, too frequently used, and the effect too palpable to doubt its immediate penetration of every organ of the body. It was for this that it was adapted and adopted. Its earliest promoter, Ruppaner, makes no claim in his treatise for especial benefit of the tissues at the site of injection. On the contrary, he speaks of the possibility of abscess in that region. We know that there is a disturbance of the relation of the cellular tissues at this point; that the solution injected is an

irritant; that the traumatism causes an increased leucocytosis—which are all favorable to the production of abscess even in a healthy tissue. Photophobia, lacrimation, congestion and pain are the predominant symptoms in corneal ulcer. The congestion is in direct ratio to the virulency of the infection. If this be great, the congestion in all the orbital tissue is great. There is no clinical data, no evidence, no law in medicine, that teaches us to select an already congested area for the introduction of an irritant, thereby accentuating the conditions instead of benefiting them. Conclusions are:

That the *rationale* of the treatment of corneal ulcers by subconjunctival injections is extremely questionable.

That the results are no better than if the injection be given in another part of the body.

That the eye not injected receives as much medication as the injected one.

That it accentuates already abnormal existing conditions.

That it adds a new traumatism to an old inflammation.

That it has a tendency to promote suppuration, to say nothing of thrombi.

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#### EXPERIMENTAL RESEARCHES ON THE EFFECTS OF DIFFERENT ANESTHETICS.

This important subject has again been taken up by THOMAS and KEMP in the *Medical Record* of September 3, 1898. They tell us that as regards ether, it would appear that this agent produces a special contraction of the renal arterioles, with a constant damaging effect upon the renal secretory cells, similar to those which follow clamping the renal artery. The kidney shrinks in bulk, with consequent fall of the oncometric tracing, and accompanied by a diminution of secretion, marked albuminuria, and finally suppression. As remarked before, this condition of the kidney is not due to any change in the general arterial circulation.

These facts would seem to contraindicate the use of ether as an anesthetic when renal disease is present, and particularly when with albuminuria there is a tendency to pulmonary edema.

The effect of chloroform upon the kidney seems to be *nil*. The oncometric curves are nearly normal and are affected only through sharing in general circulatory changes. The secretion of urine continues up to the last

moment of life, and the albuminuria is so slight that its presence at all is apparently due only to respiratory interference. Meantime the action of chloroform on the heart, as shown by the carotid tracings, is directly depressing. Ether, on the other hand, shows evidence of cardiac stimulation throughout.

The A. C. E. mixture shows the special effects both of ether on the kidneys and of chloroform on the heart, either being predominant according to the mode of the administration. If a large percentage of air be simultaneously inhaled, as is the case when chloroform alone is administered, the effect is that of chloroform cardiac depression without the effect of ether upon the kidney. If, however, the A. C. E. mixture be administered more as ether is when used alone, then a study of the carotid and kidney tracings shows clearly that we have both the cardiac depression of chloroform and the renal derangement of ether combined. This seemed to cause such powerful effects upon the breathing and upon the heart that artificial respiration had to be resorted to in every dog to which this mixture was freely administered, which was not the case with either ether or chloroform. As far as the author's observations go, therefore, they fail to see any advantage in this mixture of chloroform and ether, but rather the reverse.

These objections appear to be still more applicable to Schleich's anesthetic. The cardiac depression of chloroform and the renal disturbance of ether are simultaneously developed in the tracings, similar to but to a greater degree than with the A. C. E. mixture. Schleich claims that mixtures of different anesthetics of different boiling—*i.e.*, maximum evaporation—points are safer than the administration of the anesthetic alone, on the assumption that the absorption of an anesthetic as to quantity depends upon its boiling point. The more volatile an anesthetic is, the less will be absorbed into the blood in a given time. Hence ether, the boiling point of which is  $93^{\circ}$  F., will not be absorbed so rapidly as chloroform, whose boiling point is  $143^{\circ}$  F. If, therefore, an anesthetic could be produced whose boiling point was the same as the normal temperature of the blood, the exact amount absorbed with each inspiration would be eliminated by each expiration. By causing the mixture to be at different degrees above this point, he claims that we can regulate at will the excess which the expiration would not remove, and thus the amount of the anesthetic

retained in the blood. His addition of petroleum ether or benzine to sulphuric ether and chloroform was further to facilitate the formation of a mixture or solution of anesthetics which would afford a safer means of absorption.

The authors believe that practically this reasoning is fallacious, because it assumes that these mixtures or solutions constitute a new chemical homogeneous compound which will always be inhaled as one substance in definite chemical proportions, just as a compound salt is one substance when swallowed after solution in water; whereas the fact is that ether remains ether and chloroform stays chloroform during the inhalation, and the proportion of either which will be absorbed will depend upon the mode of administration, a tight cone allowing an amount of chloroform to be taken which would be extremely dangerous, while the free admixture with air would so lessen the absorption of ether that its specific effects would be proportionately lessened. Meantime the adoption of benzine is not the adoption of an anesthetic, for Dr. S. T. Meltzer, in a communication to the writers on his experiments upon rabbits with petroleum ether, by inhalation through mouth and nose, as well as through a tracheal cannula, says: "Petrol ether is not a narcotic. If a rabbit was put under deep anesthesia by ether, and then ether suspended and petrol ether administered, the lid reflex soon reappeared and the rabbit woke up. The inhalation of pure petrol ether alone soon brings out a distinct tetanus and opisthotonos, to which the animal soon succumbs if the inhalation be continued. If the inhalation be discontinued at the appearance of the convulsions, the animal survives the tetanus, but this is then followed by a distinct paresis of all the extremities. If ether is given with the petrol ether, the tetanus movements are suspended, but not so paralytic after-effects; the rabbit dies of paralysis of the respiratory muscles."

There is, moreover, a physical reason for doubting the manageability of mixed anesthetics, due to the fact that if two agents of different maximum points of evaporation be mixed together, the more volatile of them will increase the evaporation of the other, by carrying off more of the less volatile one than if the latter were vaporized by itself. Thus more chloroform would be inhaled if mixed with ether than if it were administered separately.

That Schleich's mixtures have been used

in a number of cases without dangerous effects is no evidence that they are safe, for the same may be said of chloroform and of ether the world over. Mixed anesthetics of any kind might be employed in hundreds of instances without unpleasant results, though actually they were more dangerous than unmixed agents, for with chloroform itself surgeons have published reports of ten thousand administrations of it without one serious accident.

*THE TREATMENT OF INOPERABLE SARCOMA WITH THE MIXED TOXINS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS: ITS IMMEDIATE AND FINAL RESULTS IN ONE HUNDRED AND FORTY CASES.*

COLEY makes a further contribution to his study of this subject in the *Medical Record* of August 27, 1898. He has used the toxins in a number of cases after a primary operation, with the idea of lessening the chances of recurrence. Theoretically this use of the toxins has much to recommend it, but as yet the cases are too few in number to justify positive statements. A few weeks' treatment with moderate doses is free from risk, and is worthy of trial.

The preparation at present used differs in no way from that described in Coley's previous paper. It consists of the mixed, unfiltered toxins of the streptococcus of erysipelas and bacillus prodigiosus, grown together for two weeks and sterilized by heating to 58° C. In children and patients much reduced in strength it is better to use the filtered toxins. This preparation is much weaker than the unfiltered, the relative strength being about one to ten. However much difference of opinion there may be as to the part the bacillus prodigiosus plays in causing the disappearance of sarcoma, the fact remains that all of Coley's successes, as well as those of other surgeons, have been obtained with the combined toxins, and he is quite convinced that the process of degeneration of the tumor tissue is greatly increased by the addition of the prodigiosus.

Many opinions have been expressed as to the nature of the process by means of which a cure is effected in the successful cases. The opinion which has been most generally advanced—though resting on theoretical rather than practical knowledge—is that it is a simple necrosis or sloughing process, resembling that following the injection of any powerful escharotic, like carbolic acid. Consequently,

it has been regarded as an entirely local process. This is far from the truth. While in some cases of soft round-celled sarcoma the rapid breaking down of the tumor would lend support to this view, there are many cases that absolutely disprove its correctness. A number of cases of sarcoma have disappeared entirely by absorption, with no breaking down; and furthermore, in several cases the injections were made remote from the tumor. This proves the action to be systemic as well as local. The toxins in some way, acting probably through the blood-serum, cause a necrobiosis with fatty degeneration of the tumor cells, the breaking down and formation of the slough depending entirely upon the preponderance of the cellular elements over the intercellular or fibrous stroma. In the spindle-celled variety absorption without breaking down is the more common process, while in the round-celled type the reverse is true. Usually, when possible, it is better to give the injections locally; a much larger quantity can, however, be safely given subcutaneously than when injected into the tumor, and this is a point of much practical importance. A severe chill and rise of temperature to 105.5° F. have been known to follow the injection of one-half minim of the mixed, unfiltered toxins when made into a highly vascular sarcoma. The severity of the reaction depends largely upon the rapidity of absorption.

The rule should be to begin with a minimum dose—for example, one-half minim—and slowly increase daily until the desired reaction has been reached. If this rule be carefully observed, the element of danger is exceedingly small. Inasmuch as the dose depends largely upon the virulence of the cultures from which the toxins are prepared, and since it is extremely difficult to keep cultures of the same degree of virulence, the dose must vary within certain limits and can be determined in the individual case only by trial, the temperature furnishing the guide. The initial dose should never be larger than one-fourth to one-half minim; boiled water may be added for the proper dilution. The aim should be to give sufficient to produce a temperature of 101° to 103° F. In some of the successful cases not more than three or four chills were produced during the entire course of treatment, and frequently patients have steadily gained weight while under treatment. This controverts the statement of some writers that the treatment is exceedingly depressing and causes rapid emaciation.

This may be true if the doses are too large, but not when the treatment is judiciously carried out. Strychnine may cause speedy death or act as an excellent tonic, according to the amount administered.

The strictest precautions should always be taken to guard against infection, for the reason that a patient is unusually liable to infection from other germs while taking the toxins. The skin should be rendered aseptic and the needle be sterilized by being passed through an alcohol flame before and after using.

It is possible in most cases to tell within a comparatively short time whether or not the toxins are likely to be efficacious. If no improvement is noted at the end of three weeks, there will be little use in continuing the treatment. In many cases marked improvement is seen within a week after the first injection. If improvement occurs the treatment should be kept up until the tumor has disappeared or until it is evidently again increasing in size.

The question of the cumulative action of the toxins if the treatment be long continued is an important one. The toxins are rapidly eliminated, and that no harm is likely to result from prolonged treatment is evidenced by the following cases:

In one case the toxins were administered steadily two or three times a week for a period of two and one-quarter years; the patient gained ten pounds in weight and remained in perfect health the entire time. In a second case the treatment has been continued, with few intervals of rest, for a period of nearly four years, with no ill effects. The writer has personally had two deaths from the treatment, and he has known of six others in the hands of other surgeons.

Out of a total of 140 cases, eighty-four were round-celled; twenty-one spindle-celled; six mixed; nine melanotic; two chondro-sarcoma; six sarcoma, in which the clinical diagnosis was not confirmed by microscopical examination; twelve sarcoma, in which the type of cell was not stated, though the diagnosis of sarcoma was confirmed by microscopical examination. Of the eighty-four round-celled sarcomata, thirty-five were more or less improved; three disappeared entirely, one patient remaining well upwards of three years, one at present well one and one-half years, and the third well at the end of one year, since which time he was not traced. Of the twenty-one spindle-celled, ten disappeared and all the others showed marked

improvement. Of the six mixed-celled, three improved; two were unimproved; one disappeared, and the patient remained well for three and one-quarter years, at the end of which time there was a recurrence in the abdomen, which proved fatal after six months' time. Of the nine cases of melanotic sarcoma only two showed slight improvement, the remainder being unaffected by the treatment. One large chondro-sarcoma disappeared, recurred at the end of seven months, and finally proved fatal; the other was slightly improved. Of the twelve cases in which the type of cell was not known, six were improved, five unimproved, and one tumor disappeared. Of the six cases not confirmed by microscopical examination, two osteosarcomata disappeared, two improved, and two remained unimproved.

Well over three years, eight cases; well from one to three years, nine cases; well from six months to one year, four cases; recurred after having once disappeared, four cases—two of these patients died, two are still living in good health after further treatment.

From published reports and personal communications, the writer has been able to collect thirty-five cases of inoperable sarcoma in which the tumor completely or very nearly disappeared as a result of the treatment in the hands of other surgeons. In twenty-six of these cases the tumor entirely disappeared. Of the total number, ten were spindle-celled; eleven were round-celled (one giant-celled); one myxosarcoma; and one endothelial sarcoma. In ten cases no microscopical examination was made, though careful examination by a number of surgeons rendered the clinical diagnosis scarcely open to question. In the remaining cases the diagnosis of sarcoma was confirmed by microscopic examination, but type of cell not stated. In addition, in five of the nine cases there was a history of recurrence after operation. Of the thirty-four cases, nine are now well upward of three years; nine from one to three years; in six cases the disease recurred in other regions of the body at the disappearance of the primary growth. This latter fact alone—that the disease recurred elsewhere—is sufficient to establish the correctness of the original diagnosis of sarcoma.

A careful study of the writer's cases, as well as those thus far treated by other surgeons, justifies the following conclusions, which are in almost perfect accord with those recently published by Moullin:

1. A considerable number of inoperable

sarcomata, the correctness of the diagnosis of which is beyond question, have entirely disappeared under this method of treatment.

2. A large proportion of these cases have remained free from recurrence more than three years after treatment—the period which has generally been accepted as of sufficient length to justify their being regarded as permanent cures.

3. Different varieties of sarcoma differ widely as regards the manner in which they are acted upon by the toxins. The results thus far show the treatment to be most successful in the spindle-celled variety, one-half of the spindle-celled sarcomata so far treated having disappeared. Round-celled sarcomata yield less rapidly, although a certain number have been successfully treated. No case of melanotic sarcoma has, up to the present time, shown more than slight improvement.

4. The action of the toxins upon sarcoma must be regarded as a rapidly progressing necrobiosis with fatty degeneration. This action is not the result of inflammation, nor does it resemble the destructive action of a local escharotic, but it is rather specific in character, exerting a direct influence upon the tumor cells.

5. The specific action is further confirmed by the fact that several tumors have entirely disappeared when the injections were made subcutaneously remote from the tumor.

6. This method of treatment is attended with a certain amount of risk, unless certain precautions are taken. The chief dangers to be guarded against are: (1) collapse from too large a dose of the toxins or from injections into a very vascular tumor; (2) pyemia from insufficient precautions as regards asepsis, especially in cases in which there is a granulating or sloughing surface. (That the risks are small is shown by the fact that in upward of two hundred cases treated personally death was caused by the injections in but two, one of which was so nearly moribund that no treatment should have been begun.)

7. The use of small doses of the toxins for a short period after primary operation, as a prophylactic measure, theoretically has much to recommend it, and if proper precautions be observed the treatment should be practically free from risk.

The action of the toxins of erysipelas upon sarcoma, as shown by clinical results, is in strict accord with the known action of the living streptococcus of erysipelas; therefore the method has a perfectly logical and scientific basis.

#### ASEPSIS IN OPERATIONS.

QUENU (*Revue de Chirurgie*, March, 1898), in speaking of Mikulicz's use of gloves in operations, says that he has not seen in his practise the amount of suppuration in hernias that Mikulicz has. The ideal is that a surgeon who practises the major operations should not touch abscesses, or, at least, that he should never put his finger in pus; and in Quenu's clinique an assistant takes charge of all phlegmons and suppurations, and after a vaginal or rectal examination the infected finger is brushed and washed with alcohol and dipped in permanganate of potash, the bisulphite of soda, and then in alcohol. If there is any doubt about the sterility of the fingers after the usual washing, they are washed in a concentrated solution of permanganate of potash, then in bisulphite of soda, then in alcohol, followed by a solution of 1 in 1000 of perchloride, and tincture of iodine is then painted on the skin under the nails.—*Quarterly Medical Journal*, July, 1898.

#### HYSTERIA AND BRAIN TUMORS.

KRAUSS (*Buffalo Medical Journal*, August, 1898) in considering the differential diagnosis of these affections, of cardinal importance to the surgeon, calls attention to the fact that all cases of suspected brain tumor with hysterical manifestations must not be considered as having been absolutely organic because death has occurred, since it is a well known fact that a fatal termination may sometimes result from the different effects of hysteria, and it is quite a mistake to look upon the disease as always having a favorable prognosis, so far as life is concerned.

Fournier and Sollier have observed cases of spasm of the glottis in hysterical girls so severe that death ensued; also in hysterical angina pectoris, which is generally curable, yet Potain reported a case in which death took place and in which on post-mortem examination absolutely nothing was found.

Fournier and Sollier also refer to hysterical anorexia in which there is sometimes a fatal termination, and even should recourse be had to artificial feeding there seems to be no power of absorption. The wasting continues and the patient dies. They also refer to the danger of forcible feeding in such cases. One of their patients who presented a marked degree of anorexia expressed a wish for some cheese, and died the same evening that she ate it. The authors point out that sudden death

may occur after hysterical vomiting, and they give the notes of one such case, no lesion of any kind being found on post-mortem examination. Thus it will be seen that the utmost care is necessary in making the examination, and still greater care and caution in interpreting the meaning of the different symptoms. In a previous paper Krauss has called attention to three groups of symptoms occurring in tumors of the brain, viz., the early symptoms, the classical symptoms, and the decisive symptoms.

The early symptoms are similar to those met with in neurasthenia and hysteria, as headaches, incapacity for mental work, disordered digestion, nervous irritability, and a general malaise. The classical symptoms enumerated in the order of their importance are: (1) head pain; (2) optic neuritis; (3) mental apathy; (4) nausea and vomiting; and as a special localizing symptom to be added to this group must be included (5) paralysis. The decisive symptom, choked disc, is the only symptom which has never been observed in the varied symptomatology of hysteria, whereas all the early and classical symptoms have been frequently noted in functional diseases. It is therefore of extreme importance that this sign should be sought for, not only at the first examination, but at every subsequent examination until its presence is determined, or its absence along with continued improvement signifies a purely functional disturbance in the patient.

#### "RECURRENT" GONORRHEA.

VALENTINE (*Atlanta Medical and Surgical Journal*, September, 1898) presents the following *résumé*: In many a case apparently cured of gonorrhea a discharge suddenly appears weeks, occasionally months, after the last evidence of disease was observed. This happens sometimes after coitus, sometimes without; after a glass of beer, after transient erotic excitement, or without any apparent provocative cause. Unless one knows the patient well, such a case may tax the practitioner's faith, if he would not deem the recurrence a new infection.

Oftentimes, indeed, microscopic examination shows such a suddenly appearing discharge to be loaded with gonococci, grouped in the manner characteristic of recent infection. These microbes are sometimes also disseminated throughout the discharge, or they appear scattered only.

The principal causes of such a "recurrent"

gonorrhea are: Marital reinfection; infarction of crypts, glands, or follicles of the anterior urethra; chronic residual posterior gonorrheal urethritis; gonorrheal prostatitis; seminal vesiculitis. Any two or all of these causes may be united in one case.

Whatever the cause, irrigations may soon bring about their apparent cure. And the disappearance of all symptoms of disease may be so rapid as to cause the patient and the physician to deceive themselves into believing that a permanent cure has been effected. The young practitioner especially should be warned against taking even a succession of such cases into statistic consideration, unless in each case he has assured himself that the patient is free from the causes of recurrence. To briefly discuss them:

Under marital reinfection, the evidences of gonorrhea in a woman may be so slight as to be imperceptible. The hopelessness of obtaining a cure in a man who is continually exposed to marital reinfection is too evident for discussion.

Experience daily shows patients so far returned to apparent health that the urine is perfectly free even from granules. Months, years, may go by without any results from provocative cause. Then suddenly the urine, from constitutional causes, becoming irritant to the urethra, reawakens its susceptibility to the gonococci that remained quiescent within its crypts, glands, and follicles, and an apparently new gonorrhea springs up.

Chronic residual posterior gonorrhea is the cause of autoinfection most obscure, the most difficult to diagnose, but not very difficult to treat. Its precise differentiation requires, however, something beyond ordinary experience in urethroscopy, and therefore is more proper for discussion in a paper written for specialists in genito-urinary diseases.

Roughly, though, it may be said that when the first morning urine is free from even granules, expression of the posterior urethra may detach sufficient flakes to be carried in the first urine. This, centrifugized and examined microscopically, may reveal gonococci, of which no suspicion could be otherwise obtained.

The technique of expression of the posterior urethra is simple enough for even a tyro to perform. It in no wise differs from massage of the prostate and stripping the seminal vesicles, except that to obtain certainty regarding the location of the affection pressure upon the prostate and vesicles must be avoided.

In a brilliant paper on the subject of gonorrheal prostatitis Wossidlo, of Berlin, urges that no case of gonorrhea should be dismissed without assurance being obtained that the prostate is free from disease. Perhaps the majority of cases of "recurrent" gonorrhea are due to prostatic invasion.

Seminal vesiculitis, if gonorrheal, as it is in the majority of cases, may be the cause of recurrent clap. Its other symptoms, even more so than those of prostatitis, supply that vast array of manifestations so often diagnosed as neurasthenia.

If, in a case of recurrent gonorrhea, marital reinfection can be excluded by (a) examination of the woman; (b) infarction of the crypts, glands and follicles by urethroscopy; (c) chronic residual posterior gonorrheal urethritis by expression of the posterior urethra and posterior urethroscopy; (d) gonorrheal prostatitis by massage of the prostate, —then we must look for gonorrheal vesiculitis.

The local manifestations of the last three conditions are grossly the same, differing only in detail.

For such an examination the author deems it best to place the patient on a sofa, lying on his back. The apex of the index-finger and the bed of the nail being tightly packed with soap and then thickly anointed with vaselin, the finger is gently inserted into the rectum. The other hand rests above the pubis to steady and press down the pelvic viscera. The pulp of the finger is turned toward the front of the patient, and lightly outlines the prostate, but exercises not even the slightest pressure on any part of it. If the operator desires to elicit evidence of chronic residual posterior gonorrhea, he lets the finger glide from the prostate and exercises pressure, with increasing force, in a stroking motion forward from the lowermost margin of the prostate, endeavoring with each stroke to force the posterior urethra against the posterior aspect of the pubis.

The patient is then ordered to urinate, and if this is the region affected, the urine will contain flakes, perhaps even filaments or shreds, which the urinary stream was unable to detach. Microscopy of these products of massage will reveal the character, probably gonorrheal, of the posterior urethritis. If this results negatively, examination for prostatitis may be made in the same manner, several days later. The size, shape and hardness or softness of each lobe, as well as of the isthmus, should be ascertained; lobula-

tion or smoothness should be elicited, depressible points located, and the prostatic juice, if any exudes from the meatus, microscopically examined. If none escapes, the first urine the patient passes after this massage of the prostate should be centrifugalized for examination. If the prostate contains gonococci, they will be found either in the discharge that escapes from the meatus or flows into the posterior urethra or bladder and is carried off by the urine.

If the prostate is found to be normal, then the patient should be examined two or three days later for seminal vesiculitis. This is done in the same manner, except that the finger is passed up the rectum further, beyond the prostate and to its sides. In health the seminal vesicles can be barely, if at all, felt. When enlarged by disease they assume the shape of more or less tensely filled little sausages. In engaging the finger as high up as possible on these bodies, by curving the finger downward and toward the center with increasing force, the seminal vesicles may be stripped of their contents. These are treated in the manner as described under the examination for prostatitis.

The first of either of these examinations is usually attended with some pain, but the relief the patient experiences is usually so great that he will ask for its repetition.

As in all other genito-urinary work, gentleness in these manipulations cannot be too strictly followed. Nothing is gained by violence, even harm can be done. Physicians unable to devote the most exquisite gentleness and sympathy to these cases would do well to relegate them to others.

The treatment of recurrent gonorrhea should be directed to its cause, or perhaps better, its location.

Where marital reinfection is the cause, attempts to cure the husband must prove futile while the wife remains ill, as in the majority of instances prohibitions regarding coitus are of no avail.

Where the crypts, glands or follicles of the anterior urethra harbor gonococci, if systematic dilatations and irrigations do not entirely suffice, electrolysis will complete the cure.

When posterior urethritis, prostatitis or seminal vesiculitis causes the exacerbations of autoinfection, Kollman's posterior dilator, massage of the prostate and stripping of the vesicles will be required. Irrigations, as elsewhere described, will be found valuable adjuvants to the treatment. While it is not at

all likely that even the most copious irrigations will wash away enough of the *materies morbida* to materially affect the disease, they procure an artificial edema which renders the mucous membrane an unfavorable culture medium for the gonococci.

In all cases the general condition, as well as the nervous system, suffers deterioration. This must be met by constitutional treatment, tonics, baths, attention to digestion, indeed every means at our command to fortify the patient's resistance against further inroads of the disease.

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*OBSERVATIONS ON GASTRO-ENTEROSTOMY AT THE Breslau CLINIC.*

Although the operation of gastro-enterostomy has now been practised over fifteen years, and, according to the author's research ("Statistical and Experimental Studies on Gastro-Enterostomy," by Dr. V. Chlumsky (Breslau), *Beiträge zur Klinischen Chirurgie*, Bd. xx, H. 1 and 2), there are over 600 cases on record, its results are not entirely satisfactory. The chief drawback has been found to be the establishment of a "*circulus vitiosus*," and most of the modifications of the original Wölfler operation have been undertaken for its correction. The writer's studies have been specially directed toward this particular phase of the operation, and are based on the consideration of the seventy-four cases in Professor Mikulicz's clinic, the recorded cases in the medical literature, and supplemented by experiments on animals and on the cadaver.

Of the seventy-four cases occurring in the Breslau clinic (1884-97) there were twenty-four deaths—thirty-two per cent. The operation was performed sixty-one times for the relief of malignant disease. Cause of death: collapse, thirteen; kinking and spur-formation of intestine, six; peritonitis, inhalation pneumonia, inanition and myasthenia contributed to the fatal result in the remaining cases.

Perfect healing without any intercurrent disturbances occurred only twenty-seven times. The greatest prolongation of life in cancer cases was two and one-quarter years and two and one-sixth years (still alive). All ten of the cases of operation for non-malignant disease are alive—one ten and one-half years after operation.

The first four operations were according to Wölfler's method. From 1891 to 1896

von Hacker's method alone was used, except for three cases of carcinoma. In all there have been thirteen operations by Wölfler's method, with five deaths; von Hacker's operation, forty-three times, with fourteen deaths. The relatively frequent mishaps attending von Hacker's method, especially the kinking and spur-formation experienced in the recent cases, led to a renewed trial of the Wölfler operation and to the development of a special procedure, employed eleven times, with five deaths. Five recent cases of anterior anastomosis with the aid of the Murphy button all recovered.

Considering the disturbances that follow gastro-enterostomy and the means devised to remedy them, we find that the following facts are brought out:

Wölfler's original operation (1881)—simple incision of the stomach and intestine—was apt to be followed by persistent vomiting. This dangerous symptom was, however, frequently observed in all the modifications of the original method. The vomiting, aside from that due to the anesthetic and to the irritation of the peritoneum by chemicals, may occasionally be due to a rotation or constriction of the intestine at its point of attachment. In the majority of cases the vomited matter is not fecal, but purely bilious, and the patient dies of inanition. An autopsy will show a dilatation of the stomach and of the proximal portion of the anastomosed loop, while the collapsed condition of the distal loop shows plainly that no food has reached it, the entire stomach contents having gotten into the wrong limb of the loop, and becoming stagnant there are finally pressed back into the stomach, causing incessant vomiting. Besides the intestinal contents bile is also forced into the stomach. If, however, the opening is made in such a manner that the gastric contents pass equally well into both limbs of the loop, matters soon regulate themselves, the proximal portion becoming narrower and the distal end dilated; the resulting intestinal spur will press more and more against the afferent or proximal portion.

In most of the cases the contents of the stomach became stagnant, notwithstanding the existence of active contractions. This result may be due to a marked contraction of the opening from an unusual degree of union and shrinking of the borders of the fistula; or the longitudinal fibers of the stomach, having suffered but little damage by the incision, contract the opening by



muscular action. The spur between the two intestinal loops may act as a wedge and block the gastric opening.

In a large proportion of cases it will be found that the stomach and the proximal loop are enormously dilated, the distal collapsed. In this condition the peristalsis of the first portion of the bowel has been sufficient to force out the incoming material, and has become dilated to the point of absolute stasis. In the cases that recover—and a few do—even after these ominous manifestations, the patient's strength has been sufficiently maintained to allow the intestines to respond with further peristalsis, driving out the contents of the loop along into its proper channel. Another cause is to be found in the dissimilar size of the gastric and intestinal openings, although these were originally made of an equal length, but the intestinal wall gives less, and the stitches are, consequently, inserted farther apart, resulting in considerable puckering, which may block the opening.

The chief cause of vomiting is generally attributed to the entrance of bile and pancreatic secretions into the stomach. To prevent this occurrence Wölfler proposed fastening the two viscera together so that their axis of peristalsis should be directed the same way; this improvement, however, failed to accomplish its end. Further modifications were devised. Wölfler, Czerny, Mikulicz, and many others, endeavored to narrow the orifice of the proximal loop. If this attempt was only slight, the gastric contents were not prevented from passing in; if the opening was rendered very narrow, an accumulation of bile and pancreatic juice took place, causing vomiting and symptoms similar to those of incarceration.

In 1890 Lauenstein recommended making an anastomosis between the proximal loop and another coil. A better suggestion was that of Jaboulay and Braun, of establishing a communication between the proximal and distal loops. The merits of this procedure soon became obvious, but it had the disadvantage of prolonging the operation, and certain operators (among them Braun) only employed it as a secondary measure to relieve intractable vomiting. This measure saved four of Mikulicz's patients from an apparently certain death.

Kocher, Doyen, Chaput and others sought to give the opening the character of a valve. Kocher's method has as yet not been much practised. Doyen's, while extremely com-

plicated, has given its deviser excellent results. In either method the main principle of the operation is contained in the position of the attacked intestine, Doyen putting the proximal above the distal, Kocher the distal in front of the proximal loop. Hahn and others thought to diminish the dangers of spur-formation and the flow of bile and pancreatic juice into the stomach by making only small openings; the result was bad, as these orifices became greatly reduced in size. The reverse condition—large openings ten to fifteen centimeters long, as recommended by Stansfield and Senn—was not productive of any special advantage. The operation is longer, the danger of infection is increased, a spur may form, and notwithstanding its size, the fistula may become obliterated.

Division of the gut, implantation of the distal end into the stomach and of the proximal into the distal segment below the site of anastomosis, was recommended by Wölfler and Chaput, but it is questionable whether even this procedure succeeds in keeping the bile from reaching the stomach.

Attempts have also been made to remedy some of the other unfavorable features of gastro-enterostomy. The loop of bowel selected for attachment varied greatly—from the lower end of the ileum to that portion of the jejunum immediately succeeding the duodenum. Rockwitz used Nothnagel's suggestion of determining the direction of the intestine by causing peristalsis with the application of salt to the bowel. The fallaciousness of this test was soon revealed.

In order to avoid the occurrence of a fatal peritonitis, so frequently observed in all methods of operation, numerous procedures not requiring the immediate opening of the stomach and intestines were tried—application of chemicals to the mucous membrane, ligation causing sloughing of tissues, etc. These methods have not been found to present any improvements over those already known.

In 1887 Senn, with his bone plates, was the first to employ a new method, which sought more quickly and surely to establish an anastomotic opening. Numerous other devices based on the foregoing principle quickly followed. Of these the Murphy button is the only one that has stood the test of time. It possesses the following advantages: The operation is materially shortened, the opening is ideal in its working, the danger of infection is much diminished, the passage of the stomach contents outward is more quickly and easily obtained, and spur-forma-

tion is prevented. Its disadvantages are its size—it either is so large that it fails to pass out of the stomach, or it is so small that the opening is insufficient; it may not be passed out and thereby produce unpleasant complications; its results as regards mortality are scarcely any better than with the suture method. The use of the button should be limited to cases of malignant disease.

The chief cause of death after gastro-enterostomy is "collapse." Improvement in this direction, according to Czerny, must be sought for by a more judicious selection of cases; according to the author, in perfection of technique.

With regard to the various modifications of the original method, von Hacker's is only an improvement of Courvoisier's operation. This "posterior" gastro-enterostomy has been much employed in recent years, and gives comparatively better results than the Wölfler operation. This advantage, however, may be only apparent, owing to the prevailing tendency to employ the simple anterior operation on the more desperate cases. Von Hacker's original contention that his method did away with the entrance of intestinal contents into the stomach has not been verified. The operation does not possess any essential advantages, and is attended with certain drawbacks less marked or wanting in the other methods.—*Annals of Surgery*, August, 1898.

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## Reviews.

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ON CARDIAC FAILURE AND ITS TREATMENT. With Especial Reference to the Use of Baths and Exercises. By Alexander Morison, M.D. Ed.

London: The Rebman Publishing Company, L't'd., 1897.

Although this book has but recently been received for review it appeared, as its title-page states, in 1897. As is indicated in its title it deals with the remedial measures other than drugs which are believed to be of value in cardiac disease. The volume opens with a review of our knowledge of the physiology of the heart in order that the reader may grasp the fundamental facts upon which the author bases his deductions. This portion is dealt with in a very useful manner in that the scientific side of the question is closely linked with the practical. All this text is included under the general heading of the Diagnosis and Symptomatology of Cardiac Failure. The second part of the volume discusses the

Neuro-muscular and Hæmic Factors in Disease of the Heart and Their Bearing upon Prognosis and Treatment. Part III deals with the General Treatment of Cardiac Failure, and Part IV its Treatment by Baths and Exercises. This part is by far the most exhaustive portion of the work and covers more than one hundred pages.

It is difficult to review a monograph designed to elucidate the views of an author, for he is supposed by the very nature of things to put forward his own peculiar ideas. In this work Dr. Morison makes himself a special pleader for balneological methods, with special final reference to Nauheim in a chapter by Dr. Groedel.

There is no doubt that such methods do great good in a certain proportion of cases, and the men who know the bath methods are the first to recognize the fact that like all other therapeutic methods they will not do all cases good. This is an important fact for the general practitioner to recall before sending his patients to Bad Nauheim and elsewhere, and this book will give him clear ideas as to the rules which should govern his advice.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Edited by De Forest Willard, A.M., M.D., Ph.D.

Philadelphia: William J. Dornan, 1898.

This book, in addition to a list of the members of the Association and a record of the transactions, gives the papers presented by the members at the last regular meeting. The book contains an admirable picture of the late D. Hayes Agnew, and a careful report of the discussion on some extremely interesting papers.

A TEXT-BOOK OF MATERIA MEDICA, THERAPEUTICS, AND PHARMACOLOGY. By George Frank Butler, Ph.G., M.D. Second Edition.

Philadelphia: W. B. Saunders, 1898.

This book, the first edition of which we reviewed in the THERAPEUTIC GAZETTE some time ago, now amounts to nearly 900 pages and deals with drugs according to a classification which is peculiar to its author and which has, we think, quite as many objections to be raised against it as some of the other classifications which its predecessors have attempted.

The early part of the work deals with a general consideration of pharmacology and therapeutics, with pharmaceutical preparations, then with what are known as "disease medicines," "symptom medicines," and

"topical remedies." As we have said before, there are necessarily many drugs which are used to relieve symptoms which are also used to relieve disease, and *vice versa*. Thus expectorants are classed among symptom remedies, while restoratives are classed among disease remedies.

On glancing over its pages we find that although nitrohydrochloric acid is mentioned as a pharmaceutical product, nothing is said about its therapeutics. Under the consideration of Animal Extracts we are told that "heart extract has been recommended in cases of nervous prostration, it being claimed that its action tends to raise the blood-pressure and increase the number of blood-corpuscles." This seems a rather indirect employment of a substance which, if it possesses any property at all, we should suppose would be employed in cardiac affections rather than in nervous prostration.

Under Mercury it is stated that should tonic doses be continued for too long a period there will be an increased weight owing to too great stimulation of the lymphatic system. This is not what is usually taught. On the contrary, it is generally stated that wasting follows the use of excessive amounts of mercurials. Under the article upon Antipyretics the following statement occurs which we fail to understand: "When the body is in a state of hyperpyrexia the heat center is in a depressed condition owing to certain poisons circulating in the blood, and will not respond to the normal limit of body temperature. Acetanilid increases the irritability of the heat center, causing it to respond to a lower temperature, and through its action on the vasomotor center stimulates the vasodilators, thereby augmenting the peripheral circulation, with consequent increase of heat dissipation." What this means from a physiological standpoint we do not know.

In the chapter upon Anesthetics, under the treatment of Untoward Manifestations it is recommended that one electrode be placed upon the larynx and the other one upon the epigastrium. Nothing is said as to the character of the electricity which should be used nor of the dangers of these applications, not to speak of their futility. Only thirteen lines are given to the consideration of nitrous oxide, and therefore it has been impossible for the author to give sufficient directions as to how it shall be employed. The prescription on page 418 is taken in every detail, even as to quantities, from another book on Therapeutics, save that in this instance the

quantities are only given in apothecaries', whereas in the book quoted from both the metric and apothecary systems are given.

The description of the effects of digitalis upon the circulatory system is not clear from a physiological standpoint and somewhat contradictory. On page 544 the following statements occur: "It is asserted that the action of digitalis may be manifested for some time upon discontinuance of a brief dosage. With regard to the specific effect of the drug upon the heart muscle this is not true, since the influence of the drug lasts but a few days indirectly through the additional muscle power developed during a few weeks' administration." Exactly what this means we do not know. It is then stated that in cases of vascular tension digitalis should be combined with a vasodilator, of which opium or morphine is generally the most useful. We would suppose that nitroglycerin was *facile princeps* the remedy in such a case. Then, too, it is stated that digitalis is recommended by all authors in every valvular disease of the heart with the possible exception of aortic regurgitation, but nothing is said of the fact that digitalis is not needed in the presence of any valvular lesion unless there is failure of compensation. We doubt very much whether it can be proved that manna is a cholagogue, as stated on page 671, and the statement that aloes has no local action is doubtful. Further than this, the statement that aloes if used habitually may bring on rather grave hemorrhoids is hardly in keeping with another which immediately follows, to the effect that the principal use of aloes is as a purgative for habitual constipation; and again, after calling attention to the secondary astringent influence of rhubarb, it is stated that this drug is a valuable remedy as a simple laxative for children. We are told that the infusion, compound licorice powder, syrup and confection of senna are employed, but nothing is said about the fluid extract of this drug. Under the heading of croton oil it is stated that in lead colic this oil is probably superior to all other purgatives, which, while not absolutely incorrect, is a very broad statement which needs qualification.

The second edition has been improved by an article on the Untoward Effects of Drugs, which has taken the place of the previous one upon Definitions, and this article is accompanied by an exhaustively arranged table designed to elucidate the facts therein stated.

At the close of his preface the author earnestly requests any reader who may dis-

cover an error of whatsoever character to report the same to him promptly.

It is said that books to a large extent reflect the image of their author, or at least give an idea as to his personal characteristics. It is evident from this book that Dr. Butler possesses two great attributes of success—one is the ability to do a large amount of work, and another is to bring together many interesting facts. The fact that the book has reached a second edition within a comparatively short space of time indicates that his labors have been appreciated.

**TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY.** By W. S. Playfair, M.D., LL.D., F.R.C.P. Seventh American from the Ninth English Edition. Copiously illustrated.

Philadelphia and New York: Lea Brothers & Company, 1898.

It is now five years since the last English edition of this book appeared, and during that time the science of obstetrics has advanced with very extraordinary speed, and has at the same time broadened materially. It therefore became necessary for the author to thoroughly revise the present edition and to call to his aid a number of younger men, whose deft touches can be found in many portions of the work. The chapter upon Conception and Generation has been revised by Dr. Eden, a number of the illustrations have been taken from Crookshank's Bacteriology, and the proofs have been largely gone over by the cousin of the author, Dr. Hugh Playfair. These statements convey to the reader a clear idea of what Playfair's Obstetrics is in its seventh American edition. It has always been one of the most important works upon this subject, and it is to-day the text-book in many of the greatest and best schools in this country and England. Unlike other books revised by an author advanced in years, its text has been kept very well in touch with the advances which have been made.

**A MANUAL OF THE DISEASES OF CHILDREN.** By John Madison Taylor, A.M., M.D., and William H. Wells, M.D. Illustrated.

Philadelphia: P. Blakiston, Son & Co., 1898.

When we look at the preface of this volume we meet at first glance with what seems to us to be a contradictory statement, for we are told that the authors do not claim this book to be a treatise on the maladies of childhood, but that their aim has been to present in a clear and concise manner the chief points in the description, differentiation and treatment of the diseases of childhood! We are told

that the authors do not attempt to offer much that is original or novel, and only obtrude their individual views when commenting upon the opinions of the great masters in the field of pediatric medicine!

There are twenty chapters in the book, beginning with the Physiology of the Infant and Child, proceeding to the diseases occurring at or near birth, and giving directions as to the care of infants and children. Chapter V is devoted to a discussion of the breeds of cows best adapted to infant feeding. After this is a chapter limited to artificial diets and recipes, and then follow those upon the diseases of the various organs, closing with others on the infectious diseases. The last two chapters are devoted to general considerations in regard to physical development and disease, and accidents requiring surgical procedures, which last is rather an innovation in a volume of this character.

It seems to us to be rather a mistake to have introduced a chapter upon Bubonic Plague, in view of the fact that the book is not supposed to discuss all the maladies of children.

An advantage gained by the reader of this volume is the fact that its authors have seen a large number of sick children through long connection with public institutions, and therefore the practical advice which they give is in many cases the result of adequate personal experience.

**A MANUAL OF PHYSICAL DIAGNOSIS.** For the Use of Students and Physicians. By James Tyson, M.D. Third Edition, revised and illustrated.

Philadelphia: P. Blakiston, Son & Co., 1898.

This is another one of the small octavo volumes which have been recently published dealing with physical diagnosis. It covers less than 300 pages and is evidently the outcome of Dr. Tyson's personal experience in teaching this important portion of medical learning. In other words, it contains just what the student needs without many additional facts, which, burdening his mind, would prevent him from remembering the main points which are of vital importance in the practical application of this subject. The illustrations showing the different forms of the malarial organisms are taken from Dr. Tyson's book upon Practice of Medicine.

This edition of Dr. Tyson's "Physical Diagnosis" deserves success and will doubtless receive the approbation which has been meted out to its predecessors and to his other contributions to medical literature. The price of the book is \$1.50.

**BRAITHWAITE'S RETROSPECT OF MEDICINE.** Simpkin, Marshall, Hamilton, Kent & Company, Limited, London, 1898. January to June.

We have so often referred with words of praise to this very useful retrospect, or synopsis of current medical literature, that we need only remind our readers that another valuable volume covering the first six months of 1898 has issued from the press and that it in every way maintains the reputation already made by its predecessors.

**TEXT-BOOK UPON THE PATHOGENIC BACTERIA.** For Students of Medicine and Physicians. By Joseph McFarland, M.D. Second Edition, revised and enlarged. Illustrated. Philadelphia: W. B. Saunders, 1898.

In the present edition we are told that chapters have been added dealing with the bacteriology of whooping-cough, mumps, yellow fever, hog-cholera and swine-plague, others describing the methods of determining antiseptics and germicides, of determining the thermal death point, and describing the gas-producing bacillus and the proteus vulgaris. One of the first things that strikes us is the fact that the type and the paper of this manual is much better for the eye than that which is found in some of its contemporaries, although it does not seem to us that all of the micro photographs are as useful in depicting what the author wishes to show as they might be. Nevertheless, as a means of bringing the student and physician in touch with the general points of bacteriology as they should be known to-day by the well informed medical man it seems to us that this volume fulfils its objects admirably.

**TROPICAL DISEASES.** A Manual of the Diseases of Warm Climates. By Patrick Manson, M.D., LL.D. (Aberd.). With 88 illustrations and two colored plates.

New York: William Wood & Company, 1898.

Dr. Manson's reputation as a student of tropical diseases is advancing with strides which are noteworthy, and he is bringing forward this important topic as a field of medical study in a manner which deserves great praise and which is receiving recognition not only in his own country but abroad. He is doing great good to medicine not only as a science, but to many persons in military and civil life who would otherwise be doomed to illness or death through lack of proper knowledge of the prophylaxis and treatment of maladies as they occur in hot countries. His small octavo volume is divided into sections dealing with Fevers and General Diseases of Undetermined Na-

ture, as Beriberi, Epidemic Dropsy and Sleeping Sickness, Abdominal Disease, Infective Granulomatous Diseases, Animal Parasites and Associated Diseases, Skin Diseases, and Diseases of an Uncertain Nature. Why there should be two separate sections dealing with "diseases of an undetermined nature" and those of an "uncertain nature" is not clear to us. Attractive portions of the volume are not only its dealings with the pathological aspect of the subjects discussed, but also with treatment, and as it is a manual written by one who is thoroughly in touch with his subject we doubt not that it will prove very popular. After one has looked over its illustrations a feeling of thankfulness arises that whatever diseases we may be exposed to in this temperate climate we at least escape some of the frightful maladies which Dr. Manson depicts so clearly.

**ENCYKLOPÄDIE DER THERAPIE.** Herausgegeben von Oscar Liebreich. Unter Mitwirkung von Martin Mendelsohn und Arthur Würzburg. Zweiter Band, III, Abtheilung.

Berlin: Verlag von August Hirschwald, 1898.

The present fasciculus extends from the middle of the article upon Hydronephrosis to that on Tumors of the Breast and covers a range of subjects which can only be considered therapeutic by accepting that term in its widest sense. The term therapeutic is, however, justified as it was in the previous fasciculi by the fact that the authors have endeavored to show how by a clear understanding of the disease these remedial measures may be properly undertaken. As in earlier volumes the authors will be recognized as being men who speak with authority. To those of our readers who can read German, we heartily commend this valuable encyclopedia.

**HAND-BOOK OF MATERIA MEDICA FOR TRAINED NURSES.** By John E. Groff, Ph.G. Philadelphia: P. Blakiston, Son & Co., 1898.

This is a small octavo of a little over 200 pages, dealing with elementary facts in regard to Materia Medica, Pharmacy, Therapeutics, and Toxicology. From it the nurse is supposed to learn the official names of preparations, their doses, the symptoms produced by overdoses and the antidotes. A copious glossary arranged alphabetically reviews to a large extent the previous text in the book, and the chapters all end with a summary designed to fix in the mind what the pupil has learned, in question and answer form.

**A MANUAL OF OTOTOLOGY.** By Gorham Bacon, A.B., M.D. Illustrated.  
Philadelphia and New York: Lea Brothers & Company, 1898.

This is a small octavo volume of a little less than 400 pages, dealing with the principal facts in otology, freely illustrated when necessity for illustration exists, the pictures being taken from other works and from the experience of the author, and in addition a colored plate showing an abscess of the cerebellum following chronic suppurative otitis. Many pictures of instruments are included. The object of the author has been to present his text in such a way that it would prove of interest not only to the specialist, but to the general practitioner. Dr. Bacon believes that the general practitioner knows too little about and pays too little attention to diseases of the ear, not only for his own sake, but also because trouble in this organ is so frequently followed by serious lesions in the central nervous system.

**ELEMENTS OF HISTOLOGY.** By E. Klein, M.D., F.R.S., and J. S. Edkins, A.M., M.D. Copiously Illustrated. Revised and Enlarged Edition.  
Philadelphia and New York: Lea Brothers & Company, 1898.

This edition, which bears Dr. Klein's signature of 1898, keeps the text of this well known book upon histology closely in touch with the recent researches in this branch of medical study. The extraordinary advances which have been made in regard to the structure of the central nervous system and the sensory organs by Golgi, Cajal and others have made it necessary for a large part of the text to be revised, and most of this work has been done by the assistant author, Dr. Edkins. Many new illustrations have also been introduced. Unlike many books published in as condensed a form as this the illustrations are unusually good, and there is every reason to believe, because of the care taken upon its revision, that the volume will continue to have its popularity among teachers and students.

**A COMPEND OF DISEASES OF THE SKIN.** By Jay F. Schamberg, A.B., M.D. Freely illustrated.  
Philadelphia: P. Blakiston, Son & Company, 1898.

This book is a part of the quiz compend series, published by the Blakistons, which have been before the profession for so many years, and deals with the elementary facts in dermatology which it is necessary for the ordinary student to know, particularly in those schools where some knowledge of the specialties of medicine are required in those

who desire to graduate. A rather unusual characteristic of the volume is the fact that most of the illustrations seem to be taken from photographs of patients who have been directly under the author's care.

Considering the size of the book, ample attention is given to the subject of treatment.

**LABORATORY WORK AND PHYSIOLOGICAL CHEMISTRY.** By F. G. Novy, Sc.D., M.D. Second Edition, revised, enlarged, and illustrated.  
Ann Arbor: George Wahr, 1898.

This book is designed for directing laboratory work of medical students and in showing them how to study the physics and physiology of the digestive functions of the blood, the urine and other substances which the body contains normally, or which it speedily eliminates as effete material. The second edition has appeared within a very short time after the publication of the first. The first chapters deal with the fats, the carbohydrates and proteids. Then follow others upon the saliva, the gastric juice, the pancreatic secretion, the bile, blood, milk, and urine, while the closing chapter deals with a list of reagents.

While the book is manifestly designed for the use of Dr. Novy's own students, we doubt not that other teachers will find it a valuable aid in their work. At the close of the volume are a number of illustrations of the various sedimentary substances found in the urine, taken from the work of von Jaksch.

**A MANUAL OF CHEMISTRY.** By W. B. Simon, Ph.D., M.D. Sixth Edition, thoroughly revised. Illustrated with colored plates and engravings.  
Philadelphia and New York: Lea Brothers & Company, 1898.

That six editions of Dr. Simon's Chemistry should have been called for within the space of, comparatively speaking, a few years indicates that he has a knack of arranging chemical knowledge in a form which is easily assimilated and which will prove valuable to both teachers and students. To those who are unfamiliar with previous editions we may state that the book first deals with the fundamental properties of matter and with general questions of physics. Then non-metals and their combinations, and metals and their combinations, are discussed. Finally, the latter portion of the book is devoted to analytical chemistry with the consideration of carbon compounds and physiological chemistry. The very last pages are devoted to tables of weights, measures, and elements.

The colored plates, all of which have been prepared with the greatest possible care, as is evident from their neat arrangement, will prove exceedingly valuable to the student working in the laboratory, since by this means he can at once identify his reactions in a far easier way than if the color changes were simply described in words rather than pictured in colors. The portion of the book dealing with the newer chemical compounds, which are now used so frequently in medicine, is particularly interesting to the modern physician.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A., M.D. OXON., M.R.C.P.  
LOND.

The summer holidays are now at an end, and the inaugural ceremonies at the various medical schools are in full swing. Charing Cross Hospital presents attractive fare to its novitiates in the form of a public lecture by Professor Virchow, who will afterwards be entertained at dinner by a distinguished medical company. To those who disparage the professional man of modern medical London it will come as a surprise that the lecture is far more in favor than the dinner—be it granted however that the lecture is free, and the dinner to be consumed only upon payment of a guinea. On the whole there is a remarkable absence of substantial changes to record in the hospitals themselves since this time a year ago. One noteworthy feature is the extensive building in connection with the London School of Medicine for Women, which has been necessitated by the very rapid growth in London of the movement for the education of women in the study of the healing art. A few years ago the medical woman was a mere object of detestation to her professional brothers, and only to be tolerated so long as her services were devoted to the dissemination of Christian knowledge, and not to the quest of commercial gain. Now all this is past, so far as London is concerned, although the same battle is being fought out successively in the provincial towns, and a fair livelihood is open to any competent medical woman.

Dr. Carstairs Douglas contributes some interesting notes to the *Glasgow Medical Journal* of a case of malignant disease treated by

nuclein. This therapeutic agent has not at present found much favor with the profession on this side of the Atlantic. Dr. Douglas employed nuclein in the hope of relieving the toxic cachexia, inferring the likelihood of its usefulness from the benefit obtained in other diseases in which toxemia is a prominent feature. The patient was a cachectic woman of thirty-eight, who had previously undergone vaginal hysterectomy for uterine cancer, and in whom a recurrence had shortly appeared in the right iliac fossa. Pain was great, but was mitigated by constant use of morphine; anemia and feebleness were extreme, and leucocytosis excessive, so that any benefit to be derived from the nuclein should have been due rather to some inherent chemical activity of the substance than to its alleged property of increasing the number of polynuclear leucocytes. The preparation employed was a five-per-cent. solution of pure nucleinic acid from yeast, supplied by Parke, Davis & Co., and was administered by the mouth. The solution was a brown liquid of strongly acid reaction, with the odor and taste of cresol, due to the preservative cresol it contained. A small teaspoonful was given three times a day, between meals, and well diluted. The chief clinical interest of the case centers in the condition of the urine, which was carefully noted both before and during the administration of the nuclein. In the first instance the daily urea excretion was 9.09 grammes, or less than one-third of the normal, while the uric acid excretion was 4.354 grammes—that is to say, nearly eight times the normal daily amount. Phosphoric acid was represented by a daily output of 5.21 grammes. The diminished urea output was probably due to the essentially non-nitrogenous diet, aided perhaps by secondary growths in the liver, which may have disturbed the urea-forming function of the liver. The uric acid excess and the increased phosphoric acid were no doubt derived, as Horbaczewski has shown, from the nuclei of the disintegrated leucocytes. After the nuclein had been administered for a fortnight, chemical examination of the urine showed a daily increase of uric acid to 4.876 grammes, while the urea and phosphoric acid remained at much the same level. It is a reasonable inference that the increased uric acid was derived from disintegration of the nuclein within the body. At first the patient seemed to derive some general betterment from the treatment, but it was at no time marked, and after a short time a steady de-

terioration set in and persisted until death. The administration of the drug by the mouth seemed to be quite free from ill effects, and at no time was there any gastric or other digestive disturbance assignable to the nuclein; nor was there any suggestion of gouty disturbance, a fact which points to defective elimination by the kidneys as a probable factor in inducing deposition of urates from a condition of uricacidemia.

One is often asked to recommend a health resort for a subject of gout or rheumatism. There is a deep-rooted insular prejudice in this country among the laity in favor of the seaside for convalescence from every ailment. Dr. Hobhouse has studied attentively the relation of the seashore to gout and rheumatism, and also the efficacy of salt baths in these conditions. The views he recently communicated on the subject to the British Balneological and Climatological Society are well worth consideration. He believes that sea air as such has little effect on rheumatic troubles apart from the question of dryness of the soil, the prevailing winds, the amount of precipitation and of sunshine, and the aspect of the place. Thus it becomes a question rather of the individual seaside resort, than between seaside and inland. In the autumn, when damp fogs prevail inland, speaking generally the seashore will be found drier and therefore more suitable; while in the spring, when east winds run riot, inland resorts will be less exposed to their influence than the seaside. For a winter resort for rheumatic subjects, a dry soil and one that absorbs moisture quickly is all-important. Such a soil is that of Egypt. It is easy to gauge the influence of any climate or locality on rheumatism, because rheumatic manifestations are almost invariably accompanied by pain, and therefore impress themselves on the subject.

The promoters of aspiring health resorts would do well to lay to heart Dr. Hobhouse's timely warning, that the reputation of a health resort is best maintained by a frank statement of the conditions for which it is unsuitable, as well as those it suits. The revilings of one patient who has been victimized do more harm than can be counterbalanced by the commendation of the many who may have reaped its benefits. Comparison of the statistics of acute and subacute rheumatism in Brighton, Hastings and Plymouth shows a percentage incidence almost identical with that of the large London hospitals; from which it would seem that the sea as such has

no special influence on these forms of rheumatism. Hobhouse summarizes his conclusion that marine climates are not indicated in the treatment of rheumatic affections, though patients in a weak and anemic condition, after acute and subacute attacks, often benefit greatly from the tonic influence of the air and do not tend to relapse. On the other hand, the health statistics of British seaside towns all point to the prevalence of chronic rheumatism. It is interesting to find the relation between the prevalence of acute and chronic rheumatism so distinctly negated. The prevalence of rheumatism at the seaside is a matter of supreme importance in England, where boys and girls from all parts of the country are congregated together in seaside schools. Dr. Hobhouse gives it as his experience that the slight and abarticular forms of rheumatism, which are so common in children, and so often unfortunately linked to disease of the endocardium, are benefited by seaside residence. With regard to gout, especially in its outspoken forms, nearly all physicians will agree with Dr. Hobhouse that those with any active symptoms are far better away from the sea altogether, and if they get an attack there, should get away as soon as possible afterwards.

It is perhaps open to question whether acute rheumatism is materially influenced by any other treatment than that which Nature herself imposes on the subject, viz., rest. Whether salicylates cut short an attack is still an open question, and even if their usefulness be conceded there are many that maintain the superior efficacy of the old combination of quinine and an alkali. But to Mr. John O'Connor has it been left to decide "that surgery is a curative agent in acute rheumatism, and that the sooner the latter term is dropped and acute infective arthritis substituted, the sooner shall we be in a position not only to better understand the complaint, but to more successfully combat it by prompt operative measures." These deductions, if we may trust the short notes communicated to the *Glasgow Medical Journal*, appear to be derived from two cases, in neither of which can we satisfy ourselves of the existence of acute articular rheumatism. To use a seeming paradox, acute rheumatism is essentially a chronic disease—that is to say, a patient in whom the disease has once manifested itself is always liable to recurrence. Mr. O'Connor does not tell us whether his drastic treatment prevents recurrence, or whether at each recurrence the operative measures are repeated.



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## Original Communications.

### THREE RECENT CASES SHOWING NECESSITY FOR EARLY OPERATION IN INTESTINAL OBSTRUCTIONS.\*

BY JOHN B. ROBERTS, M.D.

Fatal delay in resorting to operative exploration in cases of supposed intestinal obstruction often comes to the knowledge of surgeons. This paper has been prepared for the purpose of calling attention to the value of prompt exploratory incision into the abdomen, a surgical procedure so free from

danger in competent surgical hands as to make very great the responsibility of relative, friend or doctor who encourages delay. Even in cases of doubtful diagnosis the danger of exploration is less than that of waiting.

CASE I.—Intestinal obstruction due to entanglement of small intestine in a congenital opening in the mesentery; recovery after celiotomy. A young man, aged nineteen, a patient of Dr. A. Stark, of Philadelphia, was seen on December 4, 1897, with a history of having had no evacuation from the bowels for five days. He had had a somewhat similar attack of obstinate constipation a year previously. He had pain in the abdomen, his temperature was about 101°, and his ab-

\* Read before the Philadelphia County Medical Society, Sept. 14, 1898.

domen was distended. The abdomen was opened in the middle line and the small intestine found distended and congested. In the ileocaecal region the small intestine was acutely bent and entangled in an opening in the mesentery. Without any great difficulty I was able to pull the intestine from the opening, and this allowed the caliber of the gut to be reestablished. There was no evidence of gangrene, but the intestine where it was acutely bent showed some plastic lymph in the angle of the flexure. There apparently was no actual protrusion of a loop through the opening, but the bent intestine was seemingly thrust into the orifice in such a way that the sharp bend closed the lumen. The intestine was incised at a point considerably above the seat of obstruction and a large quantity of gas and liquid feces permitted to escape. This opening was sutured in the usual way and the bowel dropped back into the abdomen. The abdominal wound was then closed.

The temperature of the patient stayed high for a few days, but convalescence was uneventful, except for a slight attack of delirium, the reason for which was not ascertained.

The administration of calomel and sodium phosphate was started four hours after the completion of the operation. This early resort to laxatives I consider a valuable adjunct in the treatment of peritonitis, as well as in operative cases where the continuance or occurrence of inflammation of the peritoneum is feared.

The orifice seemed, from its appearance, to be of congenital origin. If the patient's condition had been better, an attempt would have been made to close the mesenteric hole with a flap of omentum or peritoneum. As his pulse was 118 and his temperature 101° before operation, and there was evidence of peritonitis, it was thought best to add no risk by prolonging the operation.

CASE II.—Intestinal obstruction from constriction of portion of bowel at internal inguinal ring; death. This patient, a man aged thirty years, was seen in May last, in consultation with Dr. C. Z. Weber, of Norristown, who five days before had been called to treat him for abdominal pain and vomiting, of one day's standing. There was no fever, but the vomiting soon became stercoraceous, so that Dr. Weber, after securing only a few scybalous masses as the result of rectal injections, advised operative exploration. The family at first refused to give

permission to surgical interference, but finally consented.

When we saw the patient in consultation his temperature was 100.4°, pulse 120; he was slightly delirious, and was troubled with persistent hiccough. Vomiting had consisted of feces, and there was a fecal odor to the breath; but the abdomen was flaccid and not tympanitic. There was thought to be slight distention of the abdomen in the epigastric region. Pressure on the abdominal wall caused gurgling, and after etherization a sort of swashing sound was elicited in the intestines when alternating pressure was made with the hands. The patient had no special pain in abdomen or elsewhere. There was a history of a former inguinal hernia on the left side, which had always been controlled by a truss. At the present time no swelling or prominence existed in the groin.

An incision in the median line of the abdomen at once disclosed congested small intestine; and my fingers, immediately carried to the left internal inguinal ring, found the small intestine fastened there. A portion of the wall of the bowel had entered the ring as in a Littré hernia. It was easily disengaged from the hernial opening. There were no adhesions.

The man's condition was such that it was not thought wise to search for other points of obstruction, since the obstructive constriction relieved was sufficient to account for the symptoms. The delirium and hiccough continued, and death occurred on the second day.

CASE III.—Fatal strangulation of the bowel by a persistent vitelline cord. The man, a patient of Dr. H. A. Stout, of Wenonah, was beyond middle age and had suffered with complete obstruction of the bowels for five days. When I saw him his temperature was below 96°, his abdomen greatly distended, and he had stercoraceous vomiting. Preparations were made for an immediate exploration. During the hour that was consumed in preparing the room for operation and in sterilizing instruments the patient's extremities became cold, and his face covered with clammy sweat; and he died collapsed just as etherization was about to begin.

The autopsy showed no evidence of peritonitis, but great distention of the small intestine down to a point about sixteen inches above the ileocaecal valve. The bowel from this point to the caecum was collapsed and deeply congested. Investigation showed that this loop of bowel was encircled by a thin

cord of tissue, looking very like white string of about the size used for tying grocers' parcels. This band or cord, which was thirteen centimeters long, was attached at one end to the parietal peritoneum on the front of the abdominal wall, and at the other to the mesentery above the upper portion of the constricted bowel. From another portion of bowel hung a pedunculated mass of tissue,  $4\frac{1}{2}$  centimeters long. The thread-like band previously mentioned ran through a little opening in this appendage, as a cord is run through a pulley. The appendage was attached to the intestine opposite the mesentery, but had no opening in it as would be expected if it were a Meckel's diverticulum. It may have been an altered diverticle. The constriction of the bowel by the thin, white, round cord was so tight that the portion of intestine toward the cæcum had a dark line, at the bottom of the groove made by the cord, similar to the congested gangrenous line often seen in tightly strangulated hernias.

The specimen was shown and the case reported at the meeting of the Philadelphia Pathological Society in October, 1897, since which time I have concluded that the cord was a vestigial structure—the remains of the omphalo-mesenteric or vitelline duct.

Strangulation by such embryonic structures is not very rare; though the accident occurs more frequently probably from Meckel's diverticulum than from a cord remaining as a vestige of the omphalo-mesenteric vessels alone.

Dr. Riesman read before the Pathological Society last May a paper on Meckel's diverticulum and the omphalo-mesenteric duct,\* which confirms the opinion I arrived at some time after presenting the specimen.

Relief could have most readily been given to this man by early operation. All that was required was to tear or cut the thread of tissue that constricted the ileum.

These cases show the importance of early operative interference. We must all learn that purgatives are dangerous in suspected intestinal obstruction, and that a surgeon should be called in consultation as soon as enemas sufficiently given fail to relieve the obstruction. Many lives will be saved by the recognition of the necessity of such a course of treatment.

\**University Medical Magazine*, June, 1898, p. 526. See also Fitz, *American Journal of Medical Sciences*, July, 1884; Kammerer, *Annals of Surgery*, August, 1897; and Thompson, *Annals of Surgery*, April, 1898.

*SANATORIA AND SPECIAL HOSPITALS  
FOR THE POOR CONSUMPTIVE AND  
PERSONS WITH SLIGHT MEANS.\**

BY JAMES M. ANDERS, M.D., PH.D., LL.D.,  
Professor of the Practice of Medicine and of Clinical Medicine in the Medico-Chirurgical College, Philadelphia;  
Attending Physician to the Medico-Chirurgical and Samaritan Hospitals, Philadelphia; etc.

Underlying the diversity of opinion concerning certain details there is a unity of thought among phthisio-therapeutists as to the superiority of institutional treatment of pulmonary tuberculosis over the ordinary methods.

The accumulating scientific knowledge and practical observations of the last quarter of a century have been preparing thoughtful and progressive physicians for a movement favoring hospital and sanatorium treatment. These new methods have not been advanced suddenly and without premeditation; from an evolutionary standpoint they have not been a "short and easy thing," but have been based upon an increasing exactness of knowledge concerning the infectious nature of tuberculosis, the factors entering into susceptibility to the disease, the conditions favoring its spread and those that are antagonistic, the doubtful utility of so-called specific remedies, the value of hygienic improvements, of fresh, pure air, and the precise arrangement of every hygienic and dietetic detail. As the facts enumerated were more and more fully appreciated in the past, special hospitals and sanatoria were at length provided for tuberculous patients; it was the amalgamation, so to speak, of the long list of successive truths previously established bearing upon an ubiquitous human affliction that prepared the way for the recognition of the true principles of treatment, as expressed in well-arranged institutions. In view of this fact, it seems to me that, although little provision has been made for the institutional treatment of tuberculous cases, particularly in America, we are entering upon a new era in the management of phthisis, and one that offers most promising results; a gleam of hope and brightness has fallen upon a hitherto most unfortunate class, stricken with a serious malady.

To England belongs the credit of having been the first to provide special hospitals for the poor and needy consumptive, and whilst the object of that municipal provision has long since commended itself to the practical judgment of progressive physicians and sani-

\* Presented to and read by title before the American Climatological Association, 1898, at Bethlehem, N. H.

tary officials alike, yet little has been accomplished elsewhere in the direction of establishing charitable institutions of this sort. In an article on "Hospitals and Sanatoria for Consumptives Abroad," read before the Boston Society for Medical Improvement December 13, 1897, Dr. Edward O. Otis\* gives a graphic description of the four London hospitals for chest diseases—the Brompton Hospital, City of London Hospital, Royal Hospital, and the North London, at Mt. Vernon, Hampstead Heath. These institutions "are supported by voluntary contributions, with more or less of a fixed income from invested funds," and "all are practically free, a nominal charge of a few shillings being made in a few, with an entrance fee."†

The value of special hospitals for the care and treatment of consumptives is emphasized by L. F. Flick,‡ who says: "In England during the last forty years there has been a reduction of fifty per cent. in the mortality from tuberculosis, as a result of isolation in special hospitals." This writer continues: "In the Kingdom of Naples the disease has been nearly exterminated in one hundred years by a system of isolation and disinfection or rather destruction of infected material." To prove what can be accomplished to diminish the mortality from phthisis by special hospitals, Dr. Tatham, inspector in the office of the Registrar-General of England and Wales, has furnished to Dr. S. A. Knopf§ the following statistics for those two countries:

MORTALITY BY PULMONARY PHTHISIS FOR 1,000,000 INHABITANTS.

|           |      |
|-----------|------|
| 1870..... | 2410 |
| 1875..... | 2202 |
| 1880..... | 1869 |
| 1885..... | 1770 |
| 1890..... | 1682 |
| 1895..... | 1468 |

Says Archibald Kerr Chalmers:¶ "From 1860 to 1895 there has been a reduction in the deaths from tuberculous disease of 39.1 per cent. in England and Wales, in Scotland of 36 per cent." I have found from an examination of the literature and of the available official statistics that in all great cities in which active measures have been adopted to obviate the spread of tuberculosis, particularly in London, Berlin, Glasgow, and New

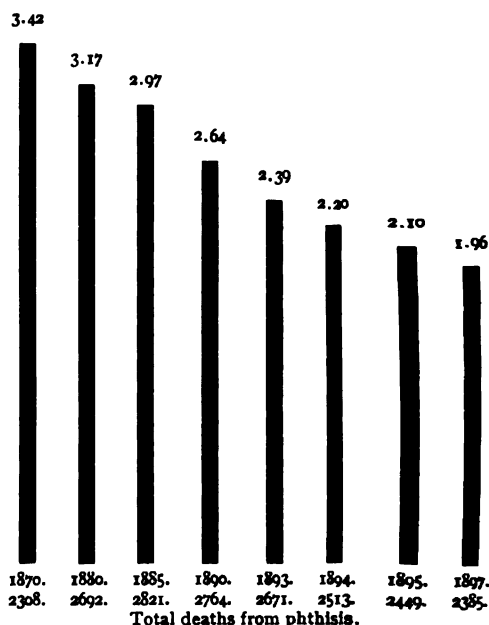
York, there has taken place a decided though gradual decrease in the death-rate from this fell disease.

The subjoined table shows the steady decrease in the number of deaths from pulmonary consumption in Philadelphia, of both sexes, for twenty years (though but feeble steps have been thus far taken to prevent the spread of tuberculosis), beginning with 1876, when the increase in population is taken into consideration:\*

| Year.     | Population. | Males. | Females. | Total. |
|-----------|-------------|--------|----------|--------|
| 1876..... | 825,594     | 1288   | 1388     | 2676   |
| 1877..... | 850,856     | 1142   | 1207     | 2349   |
| 1878..... | 876,118     | 1154   | 1337     | 2491   |
| 1879..... | 901,380     | 1213   | 1248     | 2461   |
| 1880..... | 846,980     | 1325   | 1367     | 2692   |
| 1881..... | 868,000     | 1358   | 1410     | 2768   |
| 1882..... | 886,539     | 1382   | 1427     | 2809   |
| 1883..... | 907,041     | 1343   | 1455     | 2798   |
| 1884..... | 927,995     | 1395   | 1406     | 2801   |
| 1885..... | 949,432     | 1346   | 1475     | 2821   |
| 1886..... | 971,363     | 1468   | 1300     | 2834   |
| 1887..... | 993,801     | 1437   | 1363     | 2800   |
| 1888..... | 1,016,758   | 1404   | 1291     | 2695   |
| 1889..... | 1,040,245   | 1297   | 1235     | 2532   |
| 1890..... | 1,066,964   | 1457   | 1307     | 2764   |
| 1891..... | 1,069,264   | 1380   | 1256     | 2636   |
| 1892..... | 1,092,168   | 1464   | 1245     | 2709   |
| 1893..... | 1,115,562   | 1435   | 1236     | 2671   |
| 1894..... | 1,139,457   | 1342   | 1171     | 2513   |
| 1895..... | 1,163,864   | 1320   | 1129     | 2449   |
| 1896..... | 1,168,793   | 1341   | 1173     | 2514   |

Dr. Guy Hinsdale† has prepared the appended chart, which presents in a clearer light this progressive decline in the mortality:

CHART SHOWING THE STEADY REDUCTION IN DEATHS FROM CONSUMPTION PER THOUSAND OF POPULATION, PHILADELPHIA, 1870-1897.



\* *Boston Medical and Surgical Journal*, March 4 and April 7, 1898.

† *Loc. cit.*, p. 1.

‡ "Prevention of Tuberculosis," by L. F. Flick, 1890.

§ "Sanitariums for Consumptives," *New York Medical Journal*, Oct. 5, 1895.

¶ "The Causation of Tuberculosis and its Prevention by Legislation," *Practitioner*, June, 1898.

\* Modified from the annual report of the Bureau of Health, Philadelphia, 1896.

† Report of the Pennsylvania Society for the Prevention of Tuberculosis, 1898.

The rate of decrease in the death-rate from phthisis in Philadelphia has been more gradual than in certain other leading municipalities—*e.g.*, London and New York—and the principal reason is that special hospitals for the reception of patients suffering from this disease do not exist to a similar extent in the former city. If any additional evidence be needed to show that special hospitals for pulmonary tuberculosis lessen the mortality from this disease, it is furnished by the well-established law that the disease clings with great tenacity to private houses, unless proper sanitary measures be introduced, so that one case in a given house is apt to be followed by a second, and the greatest danger to the healthy individual is protracted exposure to the bacillus-laden atmosphere of an infected house or apartment. Arthur Ransome\* remarks pertinently: "Most of the differences in tuberculosis rates of localities are due to the greater or less healthfulness of the occupations, to the amount of air-space in the workshops, the cleanliness of the surroundings, the nature of the dust to which the work gives rise; but another, and perhaps a still more important, factor in the production of tuberculosis is the existence in certain localities of infected houses, or even of infected areas." Such observations render it clear that isolation and disinfection are imperatively demanded for the thorough accomplishment of an early extermination or greatly diminished diffusion of the disease.

Hospitals for consumptives, however, located in densely populated centers do not offer advantages in any wise comparable to those of modern sanatoria situate in a suburban locality, affording a purer atmosphere and improved environing conditions. The principal objects of this paper are to show the paramount value of sanatoria and the urgent necessity for the construction of an adequate number of these institutions for the treatment of consumption in its earlier stages in persons having small means and in the needy poor, although the best means of caring for the advanced cases (in special hospitals) will also be indicated.

The Adirondack Cottage Sanatorium, under the direction of Dr. E. L. Trudeau, is a good example, of which more are urgently needed; only patients are admitted who cannot pay more than five dollars per week, thus enabling those possessed of limited means to

obtain the superior advantages of a favorably located, well arranged, and well officered sanatorium. There is, additionally, a small free-bed fund "which varies according to the yearly contribution, and there are generally at the institution from five to six beds filled by free patients." In answer to a personal letter of inquiry, Dr. Trudeau writes: "It is true that only a small percentage of the cases requiring such treatment can be admitted to the sanitarium, and the applications are greatly in excess of our accommodations." It is a lamentable fact that for the great host of tuberculous poor there is an almost absolute lack of special sanatorium accommodation in this and most other countries. The patients belonging to this category who are not provided for constitute sources of danger to well persons, and even to susceptible individuals occupying a higher social rank, and who, although acquainted with the means of prevention, are unavoidably exposed to the infection as the result of contact in the ordinary pursuits of life. Embodied in a report of the Board of Health of the City of New York to the mayor, and included in the measures subsequently adopted by the said Board for the prevention of pulmonary tuberculosis, I find this statement: "We are convinced that no other factor is so potent to-day in perpetuating that ominous death-list from pulmonary tuberculosis as the lack of proper facilities for the *poor* (italics mine) of this city stricken with this malady."\*

The most trustworthy test of the combined sanatorium and climatic treatment has been made at the Adirondack Cottage Sanatorium (before referred to), and as the working class of patients only are there admitted, the results obtained at that institution may be taken as a safe and true index of its value. "Little stress is laid on the administration of drugs, except when necessary to relieve symptoms, but cod-liver oil, the hypophosphites, and arsenic are quite generally made use of." The practical results are thus fairly and conservatively given by Dr. E. L. Trudeau: † "If all attempt at classification is abandoned, and the gross results obtained in all patients admitted to the sanatorium are considered, it may be stated approximately that twenty per cent. are apparently cured, and that in thirty per cent. more the disease

\* "The Susceptibility to Tuberculosis under Different Conditions," quoted in *Philadelphia Medical Journal*, July 16, 1898.

\* Communication to the Board of Health of New York, January 11, 1897, by Hermann M. Bigg, M.D., and T. Mitchell Prudden, M.D.

† "Sanatoria for the Treatment of Incipient Tuberculosis," *New York Medical Journal*, Feb. 27, 1897.

is more or less permanently arrested. If the most favorable of all cases admitted are separated under the term 'incipient,' the proportion of cures would be as high as from thirty to thirty-five per cent., and the importance of making an early diagnosis and of the immediate application of radical measures is strongly emphasized by this experience." From the latter statement it is seen that of the earlier or "incipient" cases, in addition to the thirty to thirty-five per cent. of cures, "in thirty per cent. more the disease is more or less permanently arrested." As to the practical value of this method, Trudeau\* further says: "The best results in treating incipient tuberculosis are obtainable in special sanatoria situated in good climates."

In Dr. Brehmer's Sanatorium at Goersdorf, founded in 1859, from twenty-four to forty-four per cent. of the cases were apparently cured or had the disease arrested. Alpine sanatoria show even better results.† Otis‡ states that the results at Falkenstein "from 1876 to 1886, of the patients who have been kept under observation since their discharge, are 13.2 per cent. of complete cures and 11 per cent. of relative (arrested), a total of 24.2 per cent.; 60 per cent. or more are improved." Again, at Hohenhonnef, about 15 per cent. are considered cured and 68 per cent. improved. The average duration of residence at the two last mentioned sanatoria is only three months. It is scarce necessary at the present time to multiply examples to clearly demonstrate the power of well-organized and intelligently administered sanitariums to benefit, arrest and even absolutely cure pulmonary tuberculosis. I might have, had I deemed additional evidence important, selected still other institutions whose results are still more strikingly favorable than those already cited (e.g., Winyah Sanitarium, at Asheville, under the charge of Dr. von Ruck,§ and the Loomis Sanitarium for Consumptives||). Hermann Weber,¶ after an extensive personal experience, holds that "treatment at good sanatoria promises more than ordinary treatment at hotels and 'pensions' without strict medical supervision."

\* *Loc. cit.*

† "Sanatoria for Consumptives," F. Rufecknacht Walters, *Practitioner*, June, 1896.

‡ *Loc. cit.*, p. 23.

§ I am aware that the basis of treatment at this institution cannot be said to be climatic and dietetic merely.

|| "Methods of Treatment at the Loomis Sanitarium for Consumptives," by Dr. J. Edward Stubbett, *Philadelphia Medical Journal*, March 2, 1898.

¶ *Philadelphia Medical Journal*, July 16, 1898.

To show the imperative necessity for the creation of these eminently satisfactory institutions, I need only point to the methods generally in vogue in the United States, France, and other countries, either of segregation in separate wards of general hospitals, or, as unfortunately happens still, of admission into the wards occupied by those ill of other diseases. In this connection it is but fair to state that the obvious element of danger to patients stricken with other forms of illness in a ward from the presence of a consumptive is probably quite generally appreciated at the present time by the medical staffs of our general hospitals, but in many instances separate wards cannot be furnished. In the absence of special accommodations the consumptive either meets with a denial of admission to those institutions (e.g., in the Presbyterian, Howard and Pennsylvania and other hospitals of Philadelphia—*vide table*) or he is allowed to occupy a bed by the side of those who are at the time susceptible to tuberculosis (e.g., patients afflicted with typhoid fever, influenza, diabetes mellitus). To show that it is not a gratuitous assumption to claim that little appropriate provision has been made for this large class of consumptives, I have collated facts and data which cannot fail to carry conviction. In the city of New York the Department of Public Charities is not able to provide separate accommodations, "excepting to the most limited extent, even for advanced cases, and as a result actual isolation does not exist in any of the municipal institutions. In every one of the institutions of the Department of Public Charities and the Department of Correction consumptives are found occupying beds in general wards of the various hospitals, associating with healthy prisoners in the cells, and in the greatly overcrowded workrooms of the workhouse and the penal institutions."\* As will be seen hereafter, however, New York City, through the continued efforts of its health department, has secured an annual appropriation for the support of a small percentage of the poor consumptives in special hospitals. That city has, comparatively speaking, the best accommodations in the form of special hospitals (*vide infra*). The table following is clearly indicative of the lack of special hospital accommodation for consumptives in New York City, though far in excess of that

\* Communication to the Board of Health of New York City, by H. M. Biggs and T. M. Prudden, 1897.

afforded by other cities. It also proves that the doors of the general and many of the "city" hospitals are closed to consumptives without means.

general wards in all stages of the disease. But it is not necessary to analyze this table any further; it speaks for itself, and in no uncertain tones, rendering clear the

| Name of institution.       | Cases of pulmonary tuberculosis admitted. | Admitted into general wards.     | Special provision.            |
|----------------------------|---|----------------------------------|-------------------------------|
| Roosevelt Hospital.....    | Yes (all stages).                         | Yes.                             | No.                           |
| Metropolitan Hospital..... | Yes (all stages).                         | No.                              | Special wards.                |
| Harlem Hospital.....       | Yes.                                      | Yes.                             | No.                           |
| Colored Home and Hospital. | Yes.                                      | No.                              | Special wards.                |
| Beth-Israel Hospital.....  | Yes (a few).                              | Yes.                             | No.                           |
| Alms-House.....            | Yes.                                      | No.                              | Separate pavilions and tents. |
| St. Luke's Hospital.....   | Yes.                                      | No.                              | Special wards.                |
| Montefiore Home.....       | Yes.                                      | No.                              | Separate wing of building.    |
| New York Hospital.....     | Yes (a few as emergency cases).           | Yes (fair sanitary precautions). | No.                           |
| St. Mark's Hospital.....   | Yes (a few as emergency cases).           | Yes (fair sanitary precautions). | No.                           |
| Presbyterian Hospital..... | Yes (a few as emergency cases).           | Yes (fair sanitary precautions). | No.                           |
| Mount Sinai Hospital.....  | Yes (a few as emergency cases).           | Yes (fair sanitary precautions). | No.                           |
| German Hospital.....       | Yes (a few as emergency cases).           | Yes (fair sanitary precautions). | No.                           |
| Bellevue Hospital.....     | Yes (a few as emergency cases).           | Yes (fair sanitary precautions). | No.                           |

In reply to a letter of personal inquiry, Dr. Vincent Y. Bowditch, of Boston, stated: "There is a lamentable lack of hospital accommodation here for the poor consumptives, the only institutions of the kind in the city being three comparatively small ones for advanced cases. Tuberculous cases are received in most of the hospitals here when not in the advanced stages, but no special provision is made for them, I regret to say, and the cases are received in the general wards."

The following is a tabulated statement of the conditions under which consumptives are received, if at all, in the principal hospitals of Philadelphia, and of the special facilities afforded for their care and treatment:

backwardness of Philadelphia with reference to proper facilities for the treatment of phthisis.

The high mortality-rate of pulmonary tuberculosis, particularly among the lower class, under existing methods of treatment is another reason that justifies an appeal to the benevolent and philanthropic for immediate action. For example, in Philadelphia the average number of deaths from all causes during the ten years ending January 1, 1897, was 22,614, while the average from consumption during the same period was 2628 cases, or 11.6 per cent. of the total death-rate.\* The percentage of all deaths due to pulmonary consumption in adult life, however, is much

| Name of institution.         | Cases of pulmonary tuberculosis admitted.           | Admitted into general wards.   | Special provision.                                 |
|------------------------------|---|--|--|
| German Hospital.....         | Yes (all stages).                                   | No.  | Special wards with special nurses.                 |
| Episcopal Hospital.....      | Yes (all stages).                                   | Yes.   | No.  |
| Howard Hospital.....         | No.   | No.  | Any cases discovered are put into a separate room. |
| Methodist Hospital.....      | Yes (incipient stage only).                         | Yes (observe rigorous disinfection).                                     | No.  |
| Pennsylvania Hospital.....   | No.   | Cases discovered are treated in general ward.                            | No.  |
| Presbyterian Hospital.....   | No.   | .....  | .....  |
| Medico-Chirurgical Hospital  | Yes (during winter season for class demonstration). | Yes (observe rigorous disinfection).                                     | No.  |
| Philadelphia Hospital.....   | Yes (all stages).                                   | No.  | Special wards.                                     |
| Jefferson College Hospital.. | Yes (incipient stage only).                         | Yes.   | No.  |
| St. Joseph's Hospital.....   | No.   | .....  | .....  |
| St. Agnes' Hospital.....     | Yes (all stages).                                   | No.  | Special wards.                                     |
| Samaritan Hospital.....      | No.   | Cases discovered treated in general ward (strict disinfection observed). | No.  |
| University Hospital.....     | Yes (only during winter for class demonstration).   | Yes (strict disinfection observed).                                      | No.  |
| Polyclinic Hospital.....     | No.   | Cases discovered treated in general wards.                               | No.  |

This table proves that not a single general hospital in Philadelphia is competent to treat properly consumption in its earlier stages; six of these institutions refuse to accept them in any stage, four have provided special wards, two treat only early cases in the general wards, while three admit them into the

higher than stated above, and this is especially true of the needy class and those with slight means.

The following data have been obtained

\*Annual report of the Board of Health (Philadelphia) for 1896.

from the records of the Philadelphia Hospital, which receives only the city's poor stricken with phthisis, through the kind aid of Dr. A. C. Morgan, the resident physician: During the six months ending June 30, 1898, seventy-one patients died in the special consumptive wards, and during the same period seventy-five were discharged, with fifty-two patients in the wards June 30. Again, the average percentage of the total death-rate in the Philadelphia Hospital in recent years was nineteen per cent., hence the percentage of deaths from pulmonary tuberculosis in this institution, to which are admitted only the pauper class, is nearly double that of the city of Philadelphia (11.6 per cent.). Moreover, from the *Monthly Bulletin* (December, 1897) of the State Board of Health of New York I gather that in 1896 phthisis caused 10.8 per cent. of the total mortality in that State, and it has varied in past years only from 10.6 to 11 per cent.

The consumptive poor that seek admission into the Philadelphia Hospital are found to be in all stages of the affection, though in the majority of instances, perhaps, they are in the advanced period of the disease. May not the higher percentage of deaths from phthisis in the Philadelphia Hospital, as compared with the percentage of deaths from this disease in the city as a whole, be due to the cases having progressed to a late stage at the time of admission? At first glance an affirmative answer would seem to be the correct one, but a few words of explanation only are needed to permit a fuller appreciation of the facts. As stated before, seventy-five of the phthisical patients in the Philadelphia Hospital were discharged during the six months ending June 30, 1898

(about the same number as died during this period), and a similar showing is made by the figures for 1895 and other previous years. A fair percentage of those discharged are improved, and in a preponderating proportion the discharge is granted upon the patient's own request. Moreover, it is to be recollected that the total annual death-rate for all diseases in the Philadelphia Hospital is inordinately high for the aggregate number of cases treated—a circumstance that tends to lessen the relative percentage of deaths from phthisis in this institution, as does the fact, also, that the average length of sojourn in the Philadelphia Hospital is only about three months. After due allowance is made for all modifying conditions, the data gleaned from the records of the Philadelphia Hospital show the death-rate in tuberculosis among the poor, under existing methods of treatment, to be insufferably high.

Upon examining the official reports, it is seen at a glance that the same ratio that was shown to exist between the percentage of the total number of deaths due to pulmonary tuberculosis in Philadelphia and that of the mortality of the Philadelphia Hospital due to the same cause, viz., nearly two to one in favor of the latter institution, obtains as to the question of the frequency of occurrence, the disease being almost twice as common among the lower as the upper class of society. As tending to corroborate the view that the working class and the pauper element, to be found in overcrowded districts, are peculiarly prone to the affection, let me borrow the words of L. F. Flick, a calm, true observer of phenomena concerning tuberculosis in its varied phases: "From my own experience I am under the impression that

IN EACH 1000 DEATHS FROM ALL CAUSES THERE WERE FROM

| DISTRICTS.*                   | All zymotic diseases. | Typhoid fever. | Scarlet fever. | Diphtheria and croup. | Diarrhœal diseases. | Consumption. | Acute respiratory diseases. |
|-------------------------------|-----------------------|----------------|----------------|-----------------------|---------------------|--------------|-----------------------------|
| Lake Ontario and Western..... | 106.00                | 14.00          | 15.25          | 41.00                 | 11.50               | 130.00       | 176.20                      |
| West Central.....             | 75.00                 | 26.65          | 2.25           | 42.25                 | 15.50               | 110.00       | 165.00                      |
| East Central.....             | 75.00                 | 15.00          | ....           | 32.50                 | 12.00               | 97.50        | 172.50                      |
| Southern Tier.....            | 82.00                 | 27.50          | 2.30           | 20.50                 | 25.00               | 93.50        | 143.20                      |
| Mohawk Valley.....            | 107.00                | 18.60          | 7.00           | 35.00                 | 16.25               | 51.15        | 125.60                      |
| Adirondack and Northern.....  | 86.00                 | 30.00          | 2.25           | 22.50                 | 13.50               | 92.25        | 175.00                      |
| Hudson Valley.....            | 45.00                 | 14.00          | ....           | 13.50                 | ....                | 92.25        | 135.00                      |
| Maritime.....                 | 90.00                 | 24.25          | 3.65           | 32.75                 | 18.20               | 100.50       | 175.75                      |

\*The sanitary districts into which the State is divided are as follows: Maritime District: Includes New York, Brooklyn, Long Island, Staten Island, and Westchester county. Hudson Valley District: All the counties on either side of the Hudson River, except Westchester, to and including Albany and Rensselaer. Adirondack and Northern District: The northern section of the State—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson, and Lewis. Mohawk Valley District: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern Tier District: The seven counties along the southern border of the State. East Central District: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Courtland counties. West Central District: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and Western District: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.



seventy-five per cent. of all cases of tuberculosis occur among the poor," and, he adds, "need treatment in properly equipped sanatoria."

The statistics of the Board of Health of New York also show phthisis "to be relatively most prevalent in crowded districts, and inferentially among the lower class of people with inferior sanitary surroundings."\* The above table demonstrates the absolute correctness of this assertion.

In response to a note of inquiry, Dr. Leroy W. Hubbard informs me that "in 1897 there were reported to the Sanitary Board of New York City 9708 cases of pulmonary tuberculosis, and indications are that the number this year will be about the same." As the majority of these cases are from the various charitable institutions, this statement represents fairly the number of poor consumptives in that city.

The data collated in the table below show the number of cases of phthisis treated in the out-service of the principal hospitals of Philadelphia for a term of years; also the percentage of cases of the whole number of medical cases treated in these dispensaries. It is not claimed that the statistics compiled below represent accurately the number of poor consumptives in Philadelphia, since many of the patients probably made application at more than one institution during a year, and others (about five per cent.) came from points beyond the limits of the city. On the other

treated in special hospitals or sanatoria, and thus the disease be more rapidly excluded from the mortuary records.

Biggs and Prudden\* state that nearly 9000 cases of tuberculosis were reported to the bacteriological laboratories of the Health Department of New York City in 1896, and nearly 6000 deaths resulted from this disease. They continue: "It is conservatively estimated that at least 20,000 cases of well developed and recognized pulmonary tuberculosis now exist in this city, and an additional large number of obscure and incipient forms of the disease."

Having reviewed at considerable length the existing conditions, and having demonstrated that they fall short of the requirements and advantages necessary for the successful treatment and care of the consumptive poor, the query arises, What is the remedy? Obviously, to do nothing or to continue to maintain an indifferent attitude toward the question means, on the part of any professional organization or municipality, retrogression. Increased accommodation for the reception and treatment of consumptive patients is an imperative necessity, and in attempting to answer the query I proposed before I shall classify the cases into three large groups, and point out the provision that should be made for each respectively.

*Group I.*—To this category belong the cases that have reached an advanced stage; the disease is neither curable nor arrestable,

| Name of institution<br>(out-service). | Number of years.       | Total number of<br>medical cases<br>(new) treated<br>(out-service). | Number of con-<br>sumptives<br>treated (out-<br>service). | Percentage of<br>cases of<br>phthisis. | Number of cases<br>of tuberculosis<br>treated in the<br>wards. |
|---------------------------------------|------------------------|---|---|--|--|
| Episcopal Hospital.....               | 10 years ('88 to '98). | 142,838   | 2300  | 1.61                                   | 673  |
| Medico-Chirurgical Hospital..         | 5 years ('92 to '97).  | 6,294   | 334   | 5.30                                   | ...  |
| Howard Hospital.....                  | 5 years ('93 to '98).  | 13,262  | 490   | 3.69                                   | Don't admit.   |
| Pennsylvania Hospital.....            | 10 years ('88 to '98). | 21,483  | 670   | 3.11                                   | 341  |
| Samaritan Hospital.....               | 5 years ('93 to '98).  | 1,916   | 68  | 3.54                                   | Don't admit.   |
| German Hospital.....                  | 8 years ('89 to '98).  | 11,223  | 704   | 6.27                                   | 856  |
| Presbyterian Hospital.....            | 1 year (1897).†        | 2,220   | 54  | 2.34                                   | 32   |
| University Hospital.....              | 5 years ('93 to '98).  | 9,784   | 1103  | 10.25                                  | 140  |
| St. Joseph's Hospital.....            | 2 years ('95 and '96). | 1,123   | 74  | 6.58                                   | 36   |
| Jefferson College Hospital.....       | 5 years ('93 to '98).  | 16,990  | 1318  | 7.75                                   | 64   |

†Other years dispensary cases not tabulated under separate heads.

hand, by no means all of the working class afflicted with phthisis receive treatment at the various charities, so that the figures given below are far from being in excess of the actual number of poor phthisis patients, and yet they serve to indicate how numerous the walking patients are, who for their own interests and those of the public ought to be

as a rule; they form a distinct class, considered from the standpoint of treatment, and need only to be made comfortable until death terminates all. These patients do not require climatic sanatoria, but special hospitals are necessary in order to cut off every possible channel of communication for the infection between themselves and healthy uninfected individuals, and this I hold to be impossible if

\* F. C. Curtis in response to a written request for information addressed to the Board.

\* *Loc. cit.*, p. 29.

admitted into general hospitals, however carefully they may be segregated. The few cases belonging to this class in which marked improvement followed confinement in a special hospital should be removed to a sanatorium, or, in other words, they should be treated in the same manner as Group II (*vide infra*).

The St. Joseph's Hospital for Consumptives, in New York City, where the patients received are for the most part in an advanced stage of the disease, is doing laudable work, and is the kind of institution to meet the demands of this group. Not less than 1500 consumptives are annually admitted here, at an average daily cost of fifty cents per capita. New York City also affords two other hospitals devoted exclusively to the treatment of consumptives, namely, the Seton Hospital, Spuyten Duyvil (150 beds); the Loomis Hospital Sanitarium (New York branch for incurables, with about fifty beds). Again, the Department of Health, New York City, has constantly in the Seton Hospital and the Colored Home and Hospital about eighty patients, whose care and maintenance are provided for by an appropriation, at the rate of one dollar per day. For the care of the consumptive poor of New York City there are approximately 1000 beds in the different hospitals. It might be mentioned in this connection that the subject of the proper treatment of consumptives is at present also claiming the attention of the health authorities of the State of New York, and, speaking with reference to the United States only, that State is in the vanguard so far as special and general measures to prevent the spread of phthisis are concerned. As I said before, in the quotation from Dr. Bowditch's communication, there are three comparatively small special hospitals for advanced cases in Boston, the largest being the Free Home for Consumptives, in Quincy Street, Dorchester, an admirable (private) institution.

The Rush Hospital for Consumptives, in Philadelphia, with an average of fifteen cases, aims to admit only the most hopeful cases, but examples of advanced pulmonary tuberculosis are often received, owing to the irresistible pressure of influence. At Chestnut Hill, near Philadelphia, there is a hospital for the consumptive poor, under the control of the Philadelphia Protestant Episcopal Mission, where patients in all stages of the affection are treated.

According to the ground here taken, a municipal hospital for the consumptive poor, while a most praiseworthy charity, should, in

order to accomplish the most good and to work the least harm, admit only patients in the last stage of the disease. There is demanded the creation of special climatic sanatoria for the treatment of the earlier stages.

The consumptive patients among the lower class, in the incipient\* stage, give us two additional groups when therapeutically considered: Group II, the pauper class, or the true wards of the city or State (these are at present compelled to seek admission to the general hospitals, without success as a rule, except in the case of the purely public charities), and Group III, those possessing small means, and composed largely of skilled mechanics and the working class.

From the facts previously adduced concerning, first, the excellent results obtained in climatic sanatoria; secondly, the relatively increased prevalence and mortality of phthisis among the lower class in overcrowded localities; and thirdly, the utter lack of special sanatoria for their accommodation, it is clear that for the latter groups there should be provided without delay appropriate institutions. It is equally clear that as a first step a strong and universal professional sentiment in support of the treatment of this disease in sanatoria is necessary; a more crying need, however, is a healthy, aggressive public sentiment, but to bring about the latter, time and the combined and well-directed energies of local and general boards of health, of health officers, and the progressive element of the medical profession are required. Happily, sanitary authorities are alive to the necessity for the adoption of suitable restrictions to diminish the prevalence of this dread disease; and they can do much by formulating ordinances, the distribution of circulars of information, etc. Says Dr. Benjamin Lee;† "Those whose official positions make it their duty to do all in their power to extinguish disease, diminish the death-rate, and prolong longevity, entertain convictions so positive as to lead them to believe in the possibility of the adoption of measures which shall restrict the spread of the disease, and thus add an incalculable number of years to the aggregate of human life." The health authorities of the city of New York have taken advanced ground, and

\*I here employ the term "incipient" for the most favorable cases, rather than the first pathologic stage.

†"The Present Attitude of Sanitarians and Boards of Health in Regard to Pulmonary Tuberculosis," *Journal of the American Medical Association*, Oct. 30, 1897.

very properly placed pulmonary tuberculosis among notifiable diseases.

I heartily approve of the recommendation frequently made by sanitarians, that practical information and suggestions concerning the best means to be adopted to limit the ravages of this fell affection should be systematically and earnestly diffused, until the required knowledge, particularly with reference to the value of such measures as isolation, hygiene, and climate, shall have been thoroughly popularized; yet I am wholly convinced that to ripen sentiment, and to gain the approval of the masses in the movement to secure this ideal plan of treatment, it will be necessary to pursue an educational policy for years to come. Conversely, it is to be recollected that, as pointed out by Trudeau,\* "the education the patients receive at the sanitarium as to the nature of their disease and the methods to be relied upon in combating it is of the utmost value to them in enabling them to care for their health and avoid relapses after they have left the institution." Doubtless the erection and maintenance of an adequate number of sanatoria would prove to be the means, also, of educating the communities in which they might be located.

While it were most desirable that Group II, composed of the pauper element of society afflicted with incipient tuberculosis, should receive the benefits of sanatoria situated in the best climates, it is scarcely feasible. Fortunately, the results obtained at sanatoria situated near large cities, in localities devoid of special climatic advantages, but having a comparatively pure, fresh atmosphere, are also surprisingly good. Witness the Sharon Sanatorium, which is situate a few miles from Boston, under the charge of Dr. Vincent Y. Bowditch; it reports twenty-five per cent. of arrested cases, and a much greater percentage of improvements.

Hence, whilst the basis of the typical plan of treatment is hygienic, dietetic, and climatic, we can, by paying attention to the selection of a favorable location in an easily accessible rural district, preferably one well sheltered in the woodland, secure a uniform temperature and a purified atmosphere. I have elsewhere shown that forests tend to maintain an equality of climate, both as to temperature and relative humidity, so that forest resorts possess certain unmistakable advantages for the consumptive sufferer, particularly pine groves,

on account of their terebinthinate exhalations.\*

At sanatoria the hygienic details, including an appropriate dietary, are rigorously carried out under the constant surveillance of a competent medical officer, and right here lies the principal reason why excellent results are so uniformly obtained; and whilst these institutions should be invariably under State and municipal authority, I feel convinced that the group of cases under consideration (the pauper element of society in the earlier stages) should not be treated in cities, but in sanatoria near them, and always in the best available climate. This class of patients should perform certain duties under the direction of the physician in charge that would diminish the current expenses of the institution. The cities pursuing this plan for incipient or favorable cases could furnish accommodation in the form of sanatoria for little if any additional outlay, since the expenses per capita would be but little in excess of that required to keep them in general, city or almshouse hospitals with their antihygienic surroundings. Unquestionably, any method of treatment that would greatly increase the percentage of "cured" or "arrested" cases among the poor would tend to lessen municipal poverty, on the one hand, and, as a natural corollary, would save the community needless expenditures for the support of families left without a head on the other.

For Group III, or persons having slight or comparatively small means, who could afford the expense of from five to ten dollars per week, sanatoria in a good climate are urgently needed.

I have previously quoted the results obtained at Sharon, Massachusetts, from the sanatorium treatment of phthisis near large cities. Dr. Vincent Y. Bowditch,† who is the medical director of the Sanitarium for Pulmonary Diseases, wisely remarks that he "should not be so foolish as to claim results equal to those coming from a radical change of climate, such as is possible for the wealthier classes;" he contends, however, that what has been accomplished at Sharon is vastly more satisfactory than any attempt to treat patients at their homes, or in the office, in this part of the country.

This sanitarium has been established for

\* "House Plants as Sanitary Agents; Sanitary Influence of Forest Growth," by the author, p. 312.

† "The Treatment of Phthisis Near our Homes." Read at the annual meeting of the Massachusetts Medical Society, June 10, 1896.

\* *Loc. cit.*, p. 14.

the treatment of incipient pulmonary diseases only in patients who are in reduced circumstances, advanced cases not being admitted. Institutions of this character are entirely suitable for patients belonging to Group II, or those who cannot afford to pay any price for board; for Group III, however, or persons possessing small means, it were desirable, and it is entirely feasible, to supply similar institutions in localities presenting claims to climatic advantages. Dr. Bowditch has shown that "the sanatorium treatment of consumption, even in harsh climates, takes a very high rank among the methods of combating the disease," and this opinion I strongly indorse as being the best mode of treating phthisis in the dependent class. I am also in full accord with those who look upon phthisis as an infectious and contagious disease, demanding the enforcement of isolation and disinfection to limit its spread.

Granting these dicta, it is my earnest hope that the therapeutic importance of pure air, an equable and cold climate, abundance of sunshine and moderate elevation, in combination, to the phthisical invalid will not be underrated, in view of the importance now justly given to the effects of a rigorous hygienic regimen under the close supervision of a competent medical officer. It seems to me we should hold fast to the well founded and reasonable opinion, that whenever practicable the combined climatic and hygienic treatment is to be advised and adopted.

It is for these reasons that I would warmly advocate the establishment of true *climatic* sanatoria. The expenditure in such institutions would not exceed one dollar per diem for each patient (about the same amount as would keep him in a general hospital), and this would be nearly, if not entirely, covered by the payment of a weekly board ranging from five to eight or ten dollars.

At the present day the danger of contagion from the consumptive (not always immediate, but sometimes remote in point of time) in general hospitals is universally admitted by all progressive physicians. The fact that cases of infection among attendants in special hospitals for consumptives rarely occur is no argument against the necessity for the separation of consumptives from well persons, but rather an argument in favor of isolation under close medical supervision. The time has come when the apathy and indifference on the part of the medical profession now existing (with few exceptions) should speed-

ily give way to an aggressive movement looking to the proper treatment of consumptives belonging to this group.

Every physician of large clinical experience must have felt keenly in recent times his utter helplessness and inability to furnish proper advice in these instances in the absence of institutions for their reception and treatment. Boards of management of our general hospitals should be entreated to establish for this large class in the immediate future sanatoria in appropriate localities, as special departments, furnished with competent medical officers. Such an undertaking, in the name of sweet charity, would be warmly welcomed by the medical profession, but more than this, it would exert a most beneficent influence *sui generis* in combating the ravages of pulmonary tuberculosis. And whilst it were much to be desired that these institutions might be purely philanthropic in their aims, as in the case of the Adirondack Cottage Sanatorium, if a graded scale of prices, as suggested above, were adopted, the deficiency, if any, in the expenses for professional care and maintenance would be small indeed, and easily met by voluntary contributions.

It would seem that philanthropists owe a duty to this particular class of invalids that has not as yet been discharged. Perhaps they have not appreciated the obligation they owe, because they have not realized the grounds on which it rests. In the case of the Adirondack Cottage Sanatorium liberal responses have followed the appeals of its president and interested friends, and it is probable that like personal sacrifice and efforts on the part of influential members of the profession would accomplish the same good practical results in other States.

That the creation of sanatoria in a given locality tends, in a remarkable degree, to diminish the number of cases of pulmonary phthisis is strikingly illustrated by the official statistics of the village of Goerbersdorf for a hundred years:

#### DEATHS FROM PHTHISIS PULMONALIS.\*

|                |    |
|----------------|----|
| 1790-1799..... | 14 |
| 1800-1809..... | 5  |
| 1810-1819..... | 9  |
| 1820-1829..... | 9  |
| 1830-1839..... | 8  |
| 1840-1849..... | 6  |
| 1850-1859..... | 7  |
| 1860-1869..... | 4  |
| 1870-1879..... | 5  |
| 1880-1889..... | 5  |

\* Quoted by S. A. Knopf, M.D., *loc. cit.*, p. 463.

Such sanatoria would, in the second place, reduce the enormous death-rate from tuberculosis, in existing and future cases, among the poorer classes, since in properly equipped sanatoria these unfortunate subjects would receive the benefits of the most approved methods of treatment in incipient or favorable stages of the affection. What I have previously stated concerning the practical results in the treatment of phthisis in sanatoria has, I trust, left no doubt in the minds of my readers as to the absolute reliability of this statement.

It is not my purpose to deal here with the subject of the treatment of phthisis among the wealthier classes, who can enjoy the advantages of open-air climatic treatment in the best localities, or the benefits of more elaborate and well equipped sanatoria, to be found especially in different European countries.\* But I wish merely to emphasize the earnest hope that private enterprise will speedily create more of these institutions for the well-to-do consumptives also, and thus diminish the danger from the diffusion of tuberculous virus, which must at present result from their occupying boarding-houses and hotels where large numbers of well persons congregate.†

In concluding this paper I hold it to be preeminently the duty of the medical profession to seek to promulgate right notions on the treatment and care of phthisical patients among State and municipal legislative bodies, the medical profession at large, and the general public. The most important work, however, now and in the immediate future is not so much to thus propagate the combined method of treatment here advocated, but to induce the members of the medical profession to translate into active measures the essence of their belief.

An organized effort to bring relief to the large class of sufferers under consideration might with peculiar appropriateness be undertaken by such an organization as the American Climatological Association. Its members should individually bear a part of the work; but before they seek to induce State and municipal authorities and philanthropists to participate in the creation of appropriate institutions for the treatment of those ill with phthisis, it is an important matter to

consider what are the proper lines on which to work, and to keep in mind modern therapeutic and hygienic demands. It has been my province to point out the course to be pursued in meeting the varied needs of the lower and working classes afflicted with pulmonary tuberculosis; I have endeavored, also, to emphasize the importance of an explicit recognition of the requirements of the three groups or subdivisions of the cases, based upon such considerations as social station, stage of the affection, and the physical condition of the individual.

Provisionally, the more salient points and inferences brought forward in this paper might be summated in tabular form under two main heads:

(a) Those that show the extent and urgency of the needs presented by the large class of phthisical patients previously considered, and the value of special hospitals and sanatoria for their treatment:

1. The statistics adduced here afford clear and convincing proof that pulmonary tuberculosis is proportionately far more common, as well as more inauspicious, among the lower than among the higher classes.

2. The almost absolute lack of proper facilities for the treatment of the poor afflicted with pulmonary tuberculosis, as shown by the tables given above, is a most potent factor in maintaining the enormous death-rate from this disease.

3. Special hospitals in which every hygienic detail can be arranged with precision are far superior to separate wards in general hospitals for the treatment of cases of pulmonary phthisis.

4. The admission to, and care of such patients in, the wards of general hospitals with those suffering from other forms of illness, as is the custom still in some, and to a limited extent in many, institutions, is to be energetically deprecated. There is serious danger of transmitting the disease under these circumstances, particularly when the breaking down or suppurative stage is reached.

5. The mortality figures show a reduction of nearly fifty per cent. in consequence of the creation and continued operation of special hospitals for consumptives (*e.g.*, city of London).

6. Sanatoria near large cities afford better advantages than so-called special hospitals in densely populated centers, whilst climatic sanatoria, if properly situated, properly officered, and well equipped, show results that surpass those of all other known methods of

\*A good example of such an institution in this country is the Winyah Sanitarium, near Asheville, North Carolina, under the care of Dr. von Ruck.

† Fortunately, certain hotel-keepers already refuse to receive persons afflicted with pulmonary tuberculosis.

treatment, in the earlier or incipient stages of the disease.

7. Sanatoria lessen the mortality-rate of phthisis in communities in which they are situated.

(b) Points bearing upon the discrimination of cases, among the lower class, into three groups, and the remedy—an institution with distinctive characteristics—for each:

*Group I.*—The numerous cases that have progressed to an advanced and practically hopeless stage. These require every comfort and kind care, such as can be furnished by special hospitals for consumption in a healthful urban locality.

*Group II.*—Incipient cases among the poorer element. For such, sanatoria conveniently located in close proximity to large municipalities, though with special reference to such factors as purity of atmosphere and protection from chilly blasts, by natural elevations or the woodland, should be provided. It is not possible to secure for them the most salutary climates.

*Group III.*—Phthisis pulmonalis among the middle and working class, or persons having small means. The members of this group will find themselves compelled to depend principally upon private philanthropy, and probably to some extent also upon semi-State institutions; they need sanatorium treatment in the best climates, and there is no valid reason why the combined sanatorium and climatic treatment should not be attempted, since such an undertaking could be made to be almost self-sustaining.

1605 WALNUT STREET.

#### APOCYNUM CANNABINUM.

BY WILLIAM D. TURNER, M.D.,  
Pasadena, California.

The comments of one of your contributors on the action of apocynum cannabinum in your August number I feel are not borne out by facts, hence I make this reply.

First, *Apocynum cannabinum* and *Apocynum androsæmifolium* are so similar in their general external appearances, and grow in common in the same localities, that the inexperienced or unprincipled gatherer might easily mistake the one for the other. Even the ordinary manufacturer might easily make the same mistake.

Second, the therapeutic effects of *Apocynum androsæmifolium* are to some extent similar to those of *Apocynum cannabinum*,

though much more limited, excepting as an emetic and depressant; and from Dr. Jennings' description of the symptoms manifested in the cases to which he gave the supposed apocynum cannabinum I am justified in believing he did not administer a drug made from the true *Apocynum cannabinum*. Granting he gave the genuine article, made from the fresh herb gathered at the proper time and cured in the most approved manner, with disappointing results, that should not be sufficient evidence to condemn its use in all cases and conditions where indicated.

Thirty years' experience in the use of a medicine certainly should entitle one to greater consideration than one who had used the medicine in only three cases. This experience I have had, first using apocynum cannabinum in the year 1868, and I can truthfully say I know of no drug made from any indigenous herb growing in North America more certain in its action than *Apocynum cannabinum*. It is not in local dropsies where its curative effect is most noticeable, but in general anasarca, or cellular dropsy. It will relieve many times in cardiac dropsy with general anasarca, when not superinduced by degenerative nephritis. If the latter condition is present it is more likely to fail, or at most but temporarily relieve.

I can call to mind many cases of anasarca, ascites, hydrothorax, including cardiac dropsy, where its curative effect was marvelous. I remember a boy of eleven years who had anasarca so badly and for so long a time that on looking at his external genitals no one could tell to which sex he belonged. He had been treated for some time by two other physicians without success. Upon general examination I felt that apocynum cannabinum was the medicine called for, so I gave it continuously just short of its emetic effect. The rapid recovery and subsidence of the dropsy was almost beyond belief even to my own eyes. But he fully recovered and was well years afterward.

I gave the same to two young men, both so far advanced in cardiac dropsy as to be unable to lie down. They had been treated for months by other physicians. I gave each the same—apocynum cannabinum. To the surprise of all their friends their troubles subsided, and in three or four weeks they were able to resume their business; one of them passed a successful life insurance examination against my advice. Both of these cases

had organic changes in renal organs, and in a few months the same condition returned, and death followed.

Mrs. M., six months advanced in pregnancy, became generally dropsical, cardiac dropsy supervening. She was treated by other physicians until her condition became so alarming that a change was decided upon, and I was called. I could find no organic change in any of the organs of the body, but the conditions were so distressing that she could not lie down or sleep but for a few minutes at a time. I gave apocynum cannabinum in as full doses as she could tolerate. The dropsy speedily subsided, and she was delivered of a healthy boy at full term, and was well years afterward.

I could cite many more cases where results were equally as favorable, and a few where they were not. Indeed, I have never found an absolute specific for apparently the same condition in every case.

Professor John King refers to its use as early as 1832, as may be seen in his American Dispensatory.

Where one prescribes for a condition rather than a name, he will never find a medicine more certain in its effect than that made from the true *Apocynum cannabinum*, properly selected and prepared, either as a fluid extract, "specific" or "normal liquid."

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*CONSERVATIVE OPERATIONS ON THE  
UTERUS AND APPENDAGES;  
ILLUSTRATIVE CASES.*

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BY J. COPLIN STINSON, M.D., C.M.,  
San Francisco.

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In deciding on an operation for the removal of an ovarian cyst or uterine fibroid, etc., we should proceed upon those lines by which the cyst or tumor can be extirpated without sacrificing the ovary or uterus. Until recently oophorectomy and hysterectomy were performed. I believe that where it is possible we should avoid removing the uterus or any portion of ovarian tissue which appears normal, even though the portion of ovary remaining be small. Resection and plastic operations should be practised when pregnancy is liable to occur and delivery at term can be conducted with safety. We should endeavor to cure our patients without depriving them of their menstrual function, as sometimes the symptoms that follow hysterectomy or double oophorectomy are more taxing than those which were present before the operation was performed.

In looking over my list of cases in which I operated or assisted in an operation for an ovarian cyst, or cystic ovary, while house surgeon at the Post-Graduate Hospital, New York, during 1893 and 1894, and since I left that institution, I find they number eighty-two; of these twenty-one were ovarian cysts; five were dermoid cysts (one double); fifty-two were cystic ovaries. Salpingo-oophorectomy was performed for the ovarian and dermoid cysts, and for thirty-two of the cystic ovary cases, while in the other twenty-four excision and plastic methods were employed.

In this relation I take pleasure in making some excerpts from a paper\* recently published by Dr. A. Palmer Dudley, of New York, on "Conservative Surgery upon the Uterine Appendages." He reported sixty-five cases in which conservative methods were employed. Of these pregnancy followed in ten—six children were born at full term; three miscarried, the first by injecting the uterus with hot water, the second by injuries received from a kick, and in the third case the history was doubtful; the tenth pregnancy is still going on. Dudley further states that he was not able to trace all the cases, but has no doubt that if all were traced he would be able to record a much larger number of pregnancies. I also quote from another authority, Mathaei,† who reports six cases of ovariectomy with resection of the opposite ovary, five of the patients subsequently conceiving and bearing living children.

The following are selected from my series of cases and reported, as they are not only unique but also illustrate well conservative work on the ovaries and uterus:

CASE I.—Diagnosis: Endometritis, moderate prolapsus uteri, retroflexion with adhesions, lateral displacement of fundus uteri, bilateral ovarian cysts. M. M., aged thirty-one, widow, has always complained of dysmenorrhea. In 1894 she had a miscarriage, from which she made a slow recovery. In 1895 she fell from a bicycle, striking the right side of abdomen against a car track. Since then she complained of pain in the abdomen and pelvis, worse on the right side; she also began to have more pain with menstruation, backaches, more pain in the pelvis, worse on walking, and some vaginal discharge. In 1895 she received local treatment for a while,

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\* A. Palmer Dudley: *American Gynecological and Obstetrical Journal*, February, 1897.

† Mathaei: *Zeit. f. Gebartsh. u. Gynäk.*, Bd. xxxi, H. 2.

and later the cervix was dilated to relieve the painful menstruation. This helped her somewhat, but she was soon as afflicted as ever. I saw her June 7, 1897. She was rather pale, looked careworn, but her general condition was fairly good. She complained of back-ache, pains across the lower abdomen and in the pelvis, more severe on the right side, had some vaginal discharge, and menstruation was always painful. Examination showed tenderness over the lower part of the abdomen, more on the right side of the pelvis, cervix low in the vagina, fundus uteri somewhat enlarged, retroflexed, drawn over to the right side of the pelvis, and fixed by adhesions; ovaries enlarged and tender to the touch, tubes apparently normal. Examination under chloroform two days before operation confirmed the above.

On June 13, 1897, assisted by Dr. George Gross, of San Francisco, I made operation; chloroform being administered by the drop method. The dysmenorrhea, endometritis, retroversion with adhesions, and the prolapse of the uterus received appropriate treatment. An incision two inches long was made slightly to the left of the linea alba; immediately above the pubes, dividing the skin fat and fascia, blunt division of the left rectus was made and the peritoneum opened. She was now placed in the Trendelenburg position and pelvis examined. On account of the depth of the fundus uteri and the adhesions fixing the organs, I found it necessary to enlarge the incision slightly, the entire length being now  $2\frac{3}{4}$  inches. The fundus was found drawn over considerably to the right side of the pelvis. The adhesions were separated with the fingers after some difficulty, and the fundus was drawn into view with double tenaculum forceps. The right ovary and tube were examined; the tube was normal; the ovary contained a cyst the size of a large walnut. This was evacuated, about five drachms of serous fluid escaping. It was then excised and the cut edges of the ovary united with continuous sutures of fine chromicized catgut. The ovary was now about one-third the normal size. The left ovary and tube were next examined. The tube was normal; the ovary contained a cyst slightly larger than that on the right side. The cyst was evacuated, removing about six drachms of serous fluid, then excised, and the cut edges of the ovary united with catgut sutures.

These are the largest cysts I have operated upon or have seen, in which the cysts were excised and plastic work done on the ovaries.

The pelvic cavity and the cul-de-sac were sponged out and the abdomen closed, without drainage, in separate layers with continuous sutures. Fine chromicized catgut was used for the peritoneum, chromicized tendon for the muscle and fascia, and very fine silk for the skin. Convalescence was uninterrupted, except for an attack of catarrhal icterus, which showed itself shortly after the operation. The jaundice had nearly disappeared two weeks after the operation. The wound healed by primary union. The silk stitches were removed on the sixth day and aristol collodion applied. She was allowed to get up on the thirteenth day, and went home on the fourteenth. All the dressings were removed in the third week, when she was permitted to go around without any bandage or support. She has menstruated regularly since the operation and there is no pain or discomfort; general condition is good; has gained eighteen pounds in weight; and has no pain or other symptoms referable to the abdomen or pelvis.

CASE II.—Diagnosis: An intraligamentous fibroid of the uterus, with adhesions to the ovary; multiple cysts of the other ovary. M. W., aged thirty-five years; married. In 1894 she began to have a copious vaginal discharge. However, since early childhood she has had a discharge (vulvo-vaginitis). In the fall of 1894 she received some form of electrical treatment for her pelvic trouble. This was not attended with distress during the treatment, but afterwards the pain in the uterus was excruciating. Since then she has had pains in the pelvis and the left side of the abdomen. In December, 1897, while lifting a bucket of water she felt a peculiar pelvic pain, which was dull in character and continued for several days. There was also constant pain in the left side. Examination at this time showed that there was milk in the breasts, and the uterus was somewhat enlarged. She continued to menstruate; the flow which she had suffered from for some time was peculiar. She would pass a drop or so of blood for three days, and on the fourth the flow would commence. The bleeding was always quite severe and lasted usually five days, and later on she would pass clots of blood. She was examined March 13, 1898, by Dr. George Gross, but the abdominal muscles were so contracted that nothing could be made out with any degree of satisfaction. On March 17 she was examined under chloroform by Dr. Gross and myself. We found endometritis; uterus somewhat enlarged, in good po-



sition and movable; left ovary enlarged about three times the normal size, prolapsed and adherent. On the right there was a mass the size of a hen's egg. It extended from the right uterine cornu, right side and posterior surface of the uterus outward into the pelvis.

On April 16, 1898, assisted by Dr. G. Gross and Dr. Burgess, I operated. Chloroform was administered by Dr. Putman by the drop method. Cervix was dilated, uterus curetted and irrigated. The vagina was then packed tightly with plain gauze. This was done to push the uterus as high as possible. A vertical incision, about two and a half inches long, was made just above the pubic bone, dividing, slightly to one side of the median line, the skin, a thick layer of adipose tissue, and the fascia; blunt division of the right rectus was accomplished, and finally the peritoneum was opened at the upper angle of incision and then torn down with the fingers to the lower angle. She was now placed in the Trendelenburg position and pelvis examined. The manipulations and the intra-abdominal work were made very easy by the pushing up of the uterus, etc., with the vaginal packing. This I think is of value. The fundus was readily located and brought to the surface. In the right cornu of the uterus was a fibroid tumor about the size of a hen's egg; it was firmly attached to the right cornu and the adjacent portion of the posterior of the uterus. The Fallopian tube was displaced downward about half an inch, being located in front of the mass, which spread out into the folds of that portion of the broad ligament which contained the vascular supply to the right ovary. The external surface of the fibroid was rather firmly attached to the inner surface of the ovary, which was about  $1\frac{3}{4}$  inches long. Its attachment to the mass was about  $1\frac{1}{4}$  inches long. The connections between the ovary and fibroid were separated, using blunt dissection, aided at times by cuts with a scalpel. This necessitated division of the broad ligament of the ovary, about  $1\frac{1}{4}$  inches. The dissection was carried so close to the ovary that no vessel was cut that required clamping. The cut edges of ovary were at once sutured with fine chromicized catgut. The freeing of the ovary cut off about three-fourths of its blood-supply. Rather than sacrifice any ovarian tissue, I trusted to the remaining blood-supply to furnish nourishment for the whole organ. A circular incision was then made around the fibroid at its attachment and origin from the uterus,

first estimating the amount of uterine peritoneum that should be left, so that the cut edges could be brought accurately together with sutures. The fibroid was freed from the muscle wall by blunt dissection, aided at times by cuts with a scalpel, and the cut edges of muscular and peritoneal layers were sutured with continuous fine chromicized catgut sutures. The left ovary was bound down by a few adhesions, which were separated, when the ovary and tube were brought to the surface. The tube was patent. The ovary was about three times the normal size and contained several cysts; two, each the size of a large hickory-nut, and another about one-third the size, were evacuated and then excised. The raw edges where ovary had been adherent were also excised and the cut edges of ovary united with continuous fine catgut sutures. This reduced the ovary to about one-third the normal size. The pelvis was sponged out and the abdomen closed without drainage as in Case I. Wound healed by primary union. Silk stitches were removed on the eighth day.

Patient was up and around three weeks after the operation, when dressings were all removed, and no bandage or support used. She menstruated May 18 to 20, 1898; no pain; quantity and quality of the flow appeared normal. She is quite well; examination shows the uterus and appendages in good position; she has no pain or other symptoms referable to abdomen or pelvis, and menstruation is normal.

These favorable results show that conservative operations, or what I think would be better called scientific pelvo-abdominal surgery,\* should be more frequently employed, as we can thus cure without interfering with the physiological actions, relations and uses of the pelvic organs.

326 KEARNY STREET.

#### *THE PREVALENCE AND THE PREVENTION OF PUERPERAL INFECTION IN PRIVATE PRACTISE.†*

BY GEO. ERETY SHOEMAKER, M.D.,  
Gynecologist to the Methodist Hospital, Philadelphia.

It is more than forty years since the long fought battle was won which settled once and forever the question as to whether

\*J. Coplin Stinson: *Occidental Medical Times*, "Conservative Operations on the Uterine Appendages, with Illustrative Cases."

†Read before the Philadelphia County Medical Society, Sept. 28, 18 8.

childbed fever was contagious, or was capable of being caused by an unclean touch. Bitterly was the idea resented at that time, as now, by physicians that they themselves and their clothing could be and were the carriers of death and suffering. Personal and acrimonious contests grew out of the discussion, but gradually the truth conquered and will never again be overthrown. Nearly a generation was required, however, before those having the management of lying-in establishments grasped the situation and provided for the care of women under their charge without contaminating them. Then came the development of the science of bacteriology, which without adding to or subtracting much from what was known empirically about means of infection, has enabled us to study the processes.

At present no scientific man dares question the life-saving value of cleanliness in obstetric institutions. The mortality there has steadily declined, epidemics have been banished, and instead of being one of the most dangerous, a well managed institution has become the safest place on earth for the woman in childbed. This, too, can be attained by very simple means—the action of air and sunshine in and on the buildings and fixtures; the action in addition of soap and boiling and heating on bedding, clothing, and utensils; lastly, by having clean people in charge.

Now while this is admitted by every sanitarian and intelligent layman, as well as by every physician, a curious anomaly exists in the status of what is known as the private patient, or the woman delivered at her home. Such patients die; they die in large numbers. Many more barely escape with life, and still more have minor degrees of infection which leave them more or less permanently disabled.

Because of the absence of records which summarize these results, the facts seem to attract little attention. It has been estimated by good authority that in New York and other large cities the mortality in private practise is from two to three times that of a good lying-in institution. More than one in every hundred die, and this in spite of the better condition of these patients and their better previous care. There are no records which give fairly the figures as to deaths, and none record the non-fatal infections. From the birth reports of cities would have to be omitted all cases delivered by ignorant midwives, all self-delivered, all in squalid circumstances,

as not included in the private practise under discussion. To the very few actual death reports from puerperal fever would have to be added hundreds which appear under other names, such as pneumonia, typhoid fever, malarial fever, inflammation of the bowels or peritonitis. The disclosure and proper classification of such deaths in public reports will never be accomplished for obvious reasons. In order, then, to arrive at any conception of the prevalence of puerperal infection, let any physician consider how many cases have occurred in his own circle of acquaintance, if not in his own practise. Then let him realize that he can know personally of very few labor cases.

A man who knows much of the prevalence of infection is the consulting obstetrician,\* who for well known reasons does not parade the infected cases he sees. The gynecologist too sees many, either to consider the question of operation in the acute stage, or later for an attempt to restore lost health. The statement, "I have never been well since the birth of such and such a child," is one which very often appears in the history of his patients. In fact, as he takes the history of large numbers of women, it will develop that after some one of the labors the patient was sick longer than normal, had abdominal swelling, tenderness and fever, followed by a slow recovery with general prostration and pelvic distress. Some will innocently state that they had typhoid fever or malaria immediately after childbirth. It is not uncommon to hear a physician say, in a moment of non-statistical enthusiasm, that he has never lost a case, or never has any trouble from infection in his practise; but he might profitably consider whether or not in his routine work he uses the thermometer, whether post-mortem examinations are skilfully made in his cases of death. If his memory is good as to cases and his remark will bear his thoughtful revision, then it is true because he is clean in his work.

As to the prevalence of various grades of puerperal infection in ordinary private practise, there can be no question among those in a position to know. That the woman in good circumstances must assume risks which are

\* NOTE.—In discussing this paper one physician stated that he had seen in consultation six puerperal septic women within the month just passed, and after the reading of the paper a physician present said to the writer that his own wife had been extremely ill with puerperal sepsis, and that the physician in charge of her was said to have under his care three other septic cases at the time.

avoidable, and which her poorer and less cultured sister may entirely escape, cannot be denied.

Some of the reasons for these anomalous conditions may be briefly considered as relating (a) to the patient; (b) to the community; (c) to the physician.

(a) The more carefully nurtured and highly developed the woman and the cleaner her life, the less accustomed is her system to resisting dirt and the less immune is she to ordinary body or habitation infections. In no other way can the fact be accounted for that more women in squalid surroundings do not die; while with far fewer chances of infection the woman in refined surroundings has trouble.

(b) The attitude of the community. The ordinary house is not arranged for modern surgery or for obstetrics. The community at present realizes the situation in regard to surgery. It is perfectly willing that careful aseptic preparations may be made in a room prior to operation. It is indeed rapidly coming to the true opinion that the place for surgery is in a building built for surgery. In regard to obstetrics the community is not, however, in the same attitude of mind. Although in both cases exactly the same sources of infection are to be guarded against—namely, contact with sheets, hands, clothing, utensils, napkins or dressings which have not been specially cleaned, or which have been exposed to direct streptococcus or staphylococcus infection—the community is not yet ready to tolerate any great disturbance of ordinary household living and sleeping arrangements. The woman with unbounded resources must use the same elaborate bed and bedding which conventional family life demands, and which she herself has used for years.

The community has become willing within the last five years to build and equip expensive hospital operating rooms whose essential advantage consists almost wholly, not in their elaborateness, but in smooth floors and walls, every corner round, and easily kept clean by soap and water. That same community would at present rebel against assigning a lying-in woman to some room in her house with recently scrubbed, carpetless floor, and the plain white aseptic furniture so familiar elsewhere. That physician would at present run risks with his popularity who should go too far in this direction, yet there can be little doubt that time will bring about many changes in the direction of simplicity in the lying-in room,

with great advantages to the patient. It is not contended that aseptic labors may not in the majority of instances be conducted in a room which has in it plumbing, heavy carpets filled with dust, several layers of wall-paper one upon the other, curtains and heavy furniture seldom moved for sweeping; or where the bedclothing may not be new and certainly has never been washed, though in constant use. It may be true that it is the custom of the community to so conduct labors, and that women regard that sufficiently good which was good enough for their mothers; yet in any consideration of the actual causes of the prevalence of sepsis, such matters must be acknowledged to have an influence, particularly on the outcome of cases otherwise critical or demanding operative interference. A demand for a specially constructed lying-in room would be Utopian, but a plea for greater simplicity and cleanliness in its furniture is not.

(c) The attitude of the physician. A far more potent and active cause of puerperal infection lies in the imperfect cleansing, or *imperfect guarding when cleansed*, of the hands of the physician, which come directly in contact with the patient, and in a certain lack of care as to the clothing worn in the lying-in room. It is very common to hear remarks from physicians and laymen about the wonderful changes which have been made in the dangers of surgery and childbed by modern discoveries. True, a new era has dawned; but unfortunately the change has been made in the possibilities of prevention, and not always in the realities as carried out by those who smile sarcastically about the necessity of attention to details. It is not to be supposed that contagions are different from what they were formerly. The same risks are assumed now as fifty years ago, when a physician visits a case of erysipelas or diphtheria and goes afterward to the lying-in chamber, while the risks are not eliminated when he rinses his hands rapidly for a minute or two in a carbolic acid or corrosive sublimate lotion.

In 1843, when the greatest teachers of obstetrics were sending forth their denunciations, their sarcasm and their humorous reflections upon those who believed in the contagiousness of puerperal fever, Dr. Oliver Wendell Holmes published his classical essay upon that subject, which did so much to convince the profession of its own responsibility. Could that essay be widely read to-day much good would follow. He

showed by instance piled upon instance, giving names and places, where a physician would attend a post-mortem examination, for example, and in the same clothing attend confinement cases, which would sicken and many would die. Take, for example, the experience of a physician in 1830, who narrates as follows: "The first was in February, . . . confined on the 4th and died on the 12th." He then attended eight women, only one of whom sickened. "Mrs. E. was confined February 28, sickened and died March 8. The next day, the 9th, I inspected the body, and the night after attended a lady, Mrs. B., who sickened and died the 16th. The 10th I attended another, Mrs. G., who sickened but recovered. March 16 I went from Mrs. G.'s room to attend Mrs. H., who sickened and died 21st. The 17th I inspected Mrs. B. On the 19th I went directly from Mrs. H.'s room to attend another lady, Mrs. G., who also sickened and died. . . . Up to the 20th I wore the same clothes. I now refused to attend any labor, and did not until April 21, when having thoroughly cleansed myself I resumed my practise and had no more puerperal fever." (O. W. Holmes, *Medical Essays*, p. 150.)

It would well repay any physician practising obstetrics to-day to read that essay. For similar examples of death and disease it is by no means necessary to go back so many years, but the excitement at that time brought out a mass of evidence, some of it in our own College of Physicians. Time has now robbed it of its personal character. The writer meets many men who, fully realizing the situation, are clean in the work. Perhaps the majority are particular. It cannot be denied, however, that a very large group of physicians exists who for various reasons make no attempt at reasonable obstetric antisepsis, and who consequently not only adopt a low standard themselves, but tend to reduce to a similar low standard the women whom they employ as nurses and the community within the sphere of their influence. Some reasons for this attitude are: supposed lack of time; lack of knowledge of a simple technique; carelessness. Some claim as an excuse that the whole matter is theoretical and more or less theatrical and temporary. They have not read the evidence. As regards the general standard in the profession there can be no doubt that it is rising, and that it has risen tremendously in this regard. Men are resigning practise now who were educated before the régime of surgical cleanliness.

Perhaps what is needed most of all at present is a widely disseminated appreciation of how simple the essential methods are. Unquestionably the busy man would have to give up antisepsis in despair if it were only to be obtained by complicated and expensive sterilizers and an elaborate series of solutions in connection with marble and glass operating rooms. From the standpoint of everyday practise, however, the matter is really not complicated, and the expense is so trivial as to be out of the question.

The writer yields to none in his insistence upon painstaking aseptic and antiseptic technique, particularly in major surgery, but he is profoundly convinced that the essentials of obstetric asepsis are not complicated. They consist in getting the hands clean and in keeping them so throughout the labor (this means keeping them off chairs, clothing, etc.); in refraining from such internal examinations as are not necessary; in careful external washing of the patient and in causing her to wear baked napkins during convalescence. Four simple things, if universally and carefully used to-day, would very nearly banish puerperal sepsis. They are: (1) the hand scrubbing brush; (2) the bichloride of mercury or equivalent solution for hands and external genitals; (3) the baked (*i.e.*, sterilized) napkin; (4) the clean suit.

Four-fifths of the battle for asepsis is won when the physician will carry with him a hand scrubbing brush, new for each case, and be willing to spend ten minutes in its use with hot water and plain soap. The best brushes may be had for five cents each; they are softer and cleaner if boiled. The bichloride solution when used after the scrubbing has tenfold cleansing power. As to the dressing, no chemicals and no elaboration are necessary. There is not a house in the land important enough to boast a bake-oven where the most perfect aseptic dressing or napkin known to surgery or obstetrics cannot be prepared in an hour by simply tearing and folding the material (the conventional old muslin is good) into proper sizes, wrapping the whole supply into a bundle covered with newspapers, and baking it in the kitchen oven one hour at such temperature as will just char the outside wrappings—that is, at a low oven heat. The nurse must be instructed to refrain from careless and unnecessary handling of these napkins, but to take them one at a time from the bundle as afterward needed. On the contrary, how often, even in good houses, does the nurse tear these napkins as

needed from old garments saved up in the closet, and apply them at once to the vulva.

Another item of importance is the clothing worn by the physician in the lying-in room. Not uncommonly does the physician find himself seated or kneeling upon the bed, during the exigencies of a labor case. Should he ever have worn a white suit he might have been surprised to find how apt it was to become stained with blood or fluids. Ordinary wearing apparel receives the same stains, but does not show them. Are there not men now wearing thus the same clothing for months with which they attend cases of erysipelas, diphtheria, scarlet fever, and indeed septic cases of labor or miscarriage? Care in changing and airing the clothing is no doubt useful and must not be omitted, but the wearing of a white duck suit drawn over the ordinary clothing, if not replacing it, is a far better measure. An excellent suit may be purchased for two dollars and seventy-five cents. Such a suit can be slipped on in three minutes, and its cleanliness will surely be appreciated by every woman, while its moral influence will not be lost on the nurse.

Lastly, let us remember the influence of the physician in setting a high standard for the nurse, and the great power he may wield for good by gradually educating his community to the better appreciation of the hygiene of the lying-in chamber. The trained nurse is to-day found only occasionally outside of large cities. The great mass of the population the country over is attended to by women without special education, who adopt the lowest standard permitted by the physicians of their community.

A few words about the comfort and convenience of a simple copper box for boiling the scissors and perineum instruments or forceps. Such a box can occasionally be found in the market, but as sold is usually too heavy or too elaborate and too expensive. It can be made by any tinman out of sheet copper, tinned on one side, at a cost of from one to two dollars. It should go easily into the bag, which it may fit along the bottom, or it may be quite narrow and shallow. The lid should go entirely inside the box for compactness in carrying, and when reversed makes an excellent tray. The boiling may be done on the kitchen stove or range. An alcohol lamp is a complication.

This paper is suggested by a need which the writer's observation has taught him exists throughout the land. It makes no attempt

at a detailed description of an ideal outfit for a consultant, or for one who wishes to make a display. It is intended as a plea for a renewed effort to grasp the essentials of asepsis on the part of the hard-worked practitioner in his every-day work. Such effort will surely be repaid in freedom from anxiety and extra labor in the after-treatment of confinement cases, in the saving of life and health and usefulness to multitudes of women.

3727 CHESTNUT STREET.

#### TREATMENT OF ABDOMINAL CONTU- SION.

Dr. EUGENE ST. JACQUES says that there are a number of means of combating shock in general and internal hemorrhages, of calming any pain present, of immobilizing the wounded region of the affected organs, the aim of all of which is to favor natural cure and to prevent complications, or to cure these complications if they should arise. Stimulants, injections of different serums, ether or caffeine, absolute rest, diet, ice internally and externally, opium in all its forms, and different medical treatment according to the indications of the morbid state, form the basis of these methods of treatment. "In the presence of a very severe shock or of a very light one, there is unanimity in regard to the means to be employed. We have succeeded in obtaining a cure in extensive tears or rents of the liver, spleen, and kidney. But agreement ceases in doubtful cases."

Among the surgeons who took part in the discussion of Dr. St. Jacques' remarks was Le Dentu, who said that, except in cases of rupture of the kidney or bladder, the direct diagnosis of visceral lesions caused by abdominal contusions is open to numerous chances of error. In doubtful cases some wish a purely medical treatment; a second class refuses surgical intervention as long as the peritoneum shows no inflammation, or as long as collapse is not imminent; another class resorts to laparotomy as soon as the symptoms appear to be in the least serious. Le Dentu holds that a purely exploratory laparotomy is justifiable whenever the diagnosis is doubtful and circumstances permit *a priori* the possibility of visceral lesions. Intervention ought to be as hasty as possible, the least hemorrhage necessitating immediate action, but in general it is well to allow the wounded patient an hour or two to recover from the violence of the initial shock.—*Medical Record*, Sept. 17, 1898.

# The Therapeutic Gazette

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## Leading Articles.

### ANTITOXIN AND DIPHTHERIA.

The value of the antitoxin treatment in diphtheria is so universally acknowledged by the medical profession in this country that it seems unnecessary that an editorial should be written even with the purpose of emphasizing its value; yet there are still certain persons who proclaim from the house-tops that this plan does not rest upon a scientific basis, and that in practical application it fails to do that which is claimed for it. In some instances this view simply rests upon dogmatic assertions; in others it is apparently fortified by the quotation of statistics, and in no instance is this more noteworthy than in some figures which have been published by Kassowitz upon the reduction of mortality of diphtheria by means of this treatment.

When we come to study a large body of statistics dealing with the prevalence and mortality of a disease which afflicts individuals at widely distant points, it is proper that we do not lose sight of the fact that epidemic diseases vary greatly in their severity in different places and at different times, and in some instances without our being able to explain the cause of their moderation or viru-

lence. It is also true that increased hygienic learning is doing much to limit the frequency and severity of all infectious maladies, and that for this reason too much credit is not to be given to any plan of treatment until it is clearly shown that these factors which we have named have been eliminated as far as possible, and that the plan is really worthy of the credit which is claimed for it. When statistics are freed from these doubts they carry with them conviction, and Kossel has recently published some striking facts in regard to the mortality of diphtheria in Germany, which are as follows, and which indicate a marked reduction in the death-rate, due, at least in part, to antitoxin:

| Year.     | Absolute number of deaths from diphtheria in German towns over 15,000. | Berlin during same period. | Rate per 10,000 living. |
|-----------|--|----------------------------|-------------------------|
| 1886..... | 12,211   | 1662                       | 12.4                    |
| 1887..... | 10,970   | 1302                       | 10.7                    |
| 1888..... | 10,142   | 1195                       | 9.6                     |
| 1889..... | 11,919   | 1210                       | 10.8                    |
| 1890..... | 11,915   | 1601                       | 10.5                    |
| 1891..... | 10,484   | 1006                       | 8.4                     |
| 1892..... | 12,365   | 1342                       | 9.7                     |
| 1893..... | 16,557   | 1637                       | 13.0                    |
| 1894..... | 13,790   | 1416                       | 10.1                    |
| 1895..... | 7,611  | 987                        | 5.3                     |
| 1896..... | 6,262  | 559                        | 4.3                     |
| 1897..... | 5,208  | 546                        | 3.5                     |

From this table it will be seen that in 1896 and 1897 the minimum mortality from diphtheria in Berlin was 589 and 546, whereas from 1886 to 1895 the mortality varied from 1006 to 1662. Or, again, that the rate per 10,000 persons living in 1886 was 12.4, in 1893 it was 13, and in 1894 10.1, which suddenly fell in 1895 to 5.3, in 1896 to 4.3, and in 1897 to 3.5. A similar extraordinary diminution in mortality has occurred in Paris, the mortality from this disease during the last twenty years, according to the *Annuaire Statistique de la Ville de Paris*, being as follows:

| Year.     | Mortality, absolute number. | Deaths per 1000 living. |
|-----------|-----------------------------|-------------------------|
| 1877..... | 2393                        | 12.1                    |
| 1878..... | 1995                        | 9.3                     |
| 1879..... | 1783                        | 8.4                     |
| 1880..... | 2048                        | 9.4                     |
| 1881..... | 2214                        | 9.9                     |
| 1882..... | 2244                        | 10.0                    |
| 1883..... | 1781                        | 8.4                     |
| 1884..... | 1928                        | 8.6                     |
| 1885..... | 1655                        | 7.4                     |
| 1886..... | 1512                        | 6.7                     |
| 1887..... | 1585                        | 7.0                     |
| 1888..... | 1729                        | 7.6                     |
| 1889..... | 1706                        | 7.5                     |
| 1890..... | 1668                        | 7.3                     |
| 1891..... | 1361                        | 5.6                     |
| 1892..... | 1403                        | 5.8                     |
| 1893..... | 1266                        | 5.1                     |
| 1894..... | 1009                        | 4.2                     |
| 1895..... | 435                         | 1.8                     |
| 1896..... | 444                         | 1.8                     |
| 1897..... | 300                         | 1.2                     |

Paltauf states that these figures apply equally to the provinces of France as to the capital, and it is noteworthy that it was in these years that diphtheria antitoxin became widely employed. An additional striking fact is that while the mortality fell in this miraculous way between 1894 and 1895 in Germany and in France, it failed to do so in Austria, where the treatment was not instituted until the following year, but as soon as it was instituted a similar decrease in mortality occurred.

It has been claimed by Kassowitz that while the capitals of Germany, France and Austria show a startling decrease in mortality, London and St. Petersburg fail to do so, and for this reason the credit should not be assigned to antitoxin, but to general conditions prevailing in the capitals named. As a matter of fact, London is an apparent and not a real contrast. To those who are acquainted with the details of these matters it is a well known fact, to use Paltauf's words, that the serum on the London market at that time was a worthless article, for he states that an English manufacturer of pharmaceutical preparations between January, 1895, and July, 1896, issued tubes of 40, 60, 100, and 130 units, with 300 from tests made of the serum as a maximum, but only two tests out of eleven gave this. Similarly poor results were obtained by another manufacturer. Further than this, much of the serum imported from Germany into London at that time was inferior in quality, and tubes said to contain 250 units only contained 225. In the case of one of these antitoxins only one experiment out of seven gave a tube containing 300 to 400 units, although each was warranted to contain 500 units, while those which were guaranteed to contain 1000 units contained not more than 875. Still further, another German house supplied in London an antitoxin which was warranted to contain 100 units, but which in experiment only gave 17.5, while those tubes sold as containing 200 units gave 30 units.

In St. Petersburg Rauchfuss estimates that the mortality has been reduced to a great degree by the use of antitoxin, and Dreier gives 526 cases treated, with a mortality of 16.3 per cent., in an epidemic, against a previous mortality of 40.3 per cent. in 1890, when no epidemic was raging. A considerable number of similar statistics are to be found in Paltauf's article, which will be found in the *Medical Press and Circular*, London, of September 28, 1898.

Kassowitz asserted that within three days

after the commencement of the antitoxin treatment large numbers died, but Paltauf shows that the greatest advantage is obtained from the serum in those who usually die within three days, which is in direct opposition to Kassowitz's view. He denies absolutely the statement of Kassowitz that the use of antitoxin increases the danger of nephritis, and, finally, he adduces evidence to show that the administration of antitoxin for the purpose of immunizing those who are exposed to diphtheria is beyond all doubt a reliable method of protection.

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#### THE RATIONAL LIMITATIONS OF THERAPEUTIC PROCEDURES.

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Although it is true that the ignorant and superstitious regard drugs in much the same way that an Indian regards what he calls "medicine," and seem to have an idea that drugs produce in the human body effects similar to those produced by a fetich, it is curious to note how even educated persons seem to think that medicines have the power of seeking out disease and ousting it from the body as if they were exorcising evil spirits. Few of the laity seem to appreciate the fact that drugs which are powerful enough to do good, when properly administered, may do harm if contraindications exist to their use, and this unfortunate attitude seems to be assumed now and again even by practitioners of medicine.

As a result of ignoring the proposition that that which is powerful for good may be powerful for harm, remedies are often given which not only fail to produce good results but actually do serious damage, and because members of the profession do not take time to think of the contraindications which exist they are often led into the blind following of prominent authorities, without analyzing the advice of that authority in their own minds. As a result such persons often outstrip the original prescriber in the wide scope of diseases to which they apply the therapeutic measure which he has suggested. This is true not only of drugs, but of remedial measures other than drugs, and is perhaps nowhere better shown than in the attempt which is being made by some would-be advanced physicians in the application of what has been called the Brand treatment of typhoid fever. Having read the fact that this treatment in a certain proportion of cases will very materially increase the chances

of the patient's recovery, they jump to the conclusion that it is the best treatment for all cases and entirely ignore the fact that its originator has again and again reiterated his opinion that, like all other methods of treatment, it necessarily has certain limitations. One of the most important edicts issued by Brand has been that the bath treatment is of value in direct proportion to the earliness with which it is instituted, and that there are certain conditions of the body which contraindicate its employment in the later stages of the disease.

Indeed, it may be stated that after the second week the majority of cases of typhoid fever should not be submitted to the bath, although of course there are numerous instances to be met which are exceptions to this rule. Our attention has been once more called to this important point by a paper which is published by Dr. Simon Baruch, of New York, in the *Medical Record* of October 1, and he states that while Brand believes that when cases are seen in the first stages of the disease the bath is absolutely essential to success, a large experience has convinced him that in the later stages of cases which have not in the beginning been treated by the Brand method a decided deviation from the regular plan is imperative. Dr. Baruch then goes on to quote a number of cases in which patients gravely ill of typhoid fever were brought through their illnesses, in one case by the use of the bath, and in others by a modification of the Brand method with the substitution of affusions. Thus a man of twenty-seven years, who came under treatment after thirteen days of illness in a boarding-house, and who had a pulse of 150, with dulness, apathy and murmuring delirium, tympanites and marked subsultus, and in whom the baths did not accomplish all that was desired, speedily became better under the use of cold affusions, the administration of stimulants, and proper food; and although later on in his attack baths seemed wise and did good, the case is cited as an instance of the fact that harm can be done by strict routine therapeutics. In one patient aged forty years, who had been ill six weeks and was believed to be *in articulo mortis*, the bath was not applied, but in addition to strychnine, wet compresses were applied to the chest every hour and ablutions at 70° every two hours, with the result that the patient recovered.

The object of this editorial note is primarily to point out the fact that strict routine should never be resorted to in the treatment

of disease, and conversely that a routine method established by a competent authority should not be varied unless very clear and distinct reasons can be given for such variation, and also to point out that while a large proportion of patients will receive much benefit from cold baths, all patients do not necessarily require them.

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#### AFTER MANY DAYS.

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We had occasion some months ago to call attention to the fact that an article which had been originally published in our columns by Dr. Hartzell, on "The Uses of Resorcin in Dermatology," had been abstracted first in the German medical journals, then in several French journals, and finally came back to us abstracted in a well known American medical weekly, not credited to the journal that originally published it, the THERAPEUTIC GAZETTE, but to a French journal which had last used the abstract. Within the last week we have received a copy of the *London Clinical Journal* containing an abstract which is credited to the *St. Louis Medical and Surgical Journal*, and which that journal had credited to *La Semaine Médicale*, although the original publication on "The Use of Alcohol and Strychnine in the Treatment of Apparent Death in the New-born" was published by Dr. Bedford Brown in the THERAPEUTIC GAZETTE many months ago. We are glad to find that the material in our pages proves so valuable to our contemporaries, but we wish that due credit should be given to us for the original articles which we publish.

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#### THE PRECISE VALUE OF CREOSOTE IN PULMONARY THERAPEUTICS.

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When Sommerbrodt some years ago wrote his early papers upon the value of creosote in pulmonary tuberculosis the profession immediately jumped to the conclusion that his clinical results were correct and that the drug was one which would cure at least a certain proportion of tuberculous cases. As with many other highly vaunted remedies which have been used in this affection, it was not long before it was found that its value was limited, and while in some cases it relieved cough and aided expectoration, in others it failed to produce any marked amelioration and certainly did not materially modify the primary pulmonary lesion. At



the same time the cases have been numerous in which creosote when taken by the patient suffering from pulmonary tuberculosis has proved of very decided advantage and has so modified many of the most pressing symptoms that the clinician who has employed it has felt inclined to give it great praise, and has even noticed an improvement in the patient's general condition, this improvement being due to its useful influence in clearing the lung of secretion and in modifying cough.

Our attention has once more been directed to this matter by a brief editorial note in the *Journal of the American Medical Association* of October 20, 1898, which is entitled "Creosote not a Specific." In this note the well known and oft-repeated statement is made that our chief duty in the treatment of pulmonary tuberculosis is to maintain by every means in our power a condition of high vitality, perfect metabolism and consequent perfect nutrition, and the fact is also emphasized that creosote does not exercise an antibacillary influence, nor does it diminish the influence of the tubercle bacillus, although the writer of the editorial note recognizes, as we have already said, that it often exercises a favorable influence upon the symptoms of tubercular patients. Considerable experience in the use of creosote in tuberculosis has convinced us that it is most valuable in those cases in which there is an associated bronchitis of a chronic type characterized by profuse expectoration. In other words, the creosote acts as a stimulating expectorant by aiding in the expulsion of muco-pus from the bronchial areas, relieves the lung of secretion, and thereby aids the respiratory movements. On the other hand, in those cases of pulmonary lesion in which the bronchial symptoms are not marked, we have never been able to see that creosote exercised any beneficial influence. On the contrary it has seemed in many cases to disorder the digestion and thereby destroy the most powerful factor that we can call to our aid in maintaining the patient's nutrition. It ought to be recognized, therefore, that creosote is a valuable remedy for the relief of the bronchial complications of tuberculosis, and exercises but little good so far as the tubercular focus itself is concerned.

It has also been the experience of those who see many cases of tuberculosis that creosote should be used with caution or not at all in those patients who have a tendency to hemoptysis and in those who have marked febrile involvement.

#### LOCAL ANESTHESIA.

In the *Archives für Klinische Chirurgie*, 57 Band, 2 Heft, are found a series of papers on local anesthesia by means of cocaine and eucaïne, which deal partly with the chemistry and physiology of these drugs, but mainly with their practical application, and which show, among other things, that their use is, in Germany, far more common than it is with us, and that even for major operations, such as the radical cure of hernia and gastro-enterostomy, local anesthesia is successfully and by some surgeons habitually employed.

In comparing cocaine and eucaïne from the standpoint of their practical applicability, Braun has proven by an experimental research that when used in equal strengths they are about equal in their anesthetizing effects and power of diffusion. Eucaïne is, however, decidedly less irritating to the tissues, hence causes less primary pain, can be boiled without having its chemical composition altered, and is not more than one-half as toxic as cocaine. Any one of these advantages would entitle it to first choice.

The addition of sodium chloride is for the purpose of making an osmotically indifferent solution, which producing no reaction on the tissues allows the anesthetic contained to exert its full specific effect upon the nerve filaments. Hence, instead of using .2 per cent. of salt Braun employs .8 per cent. The morphine, an ingredient of Schleich's solution, he rejects entirely, holding, and with justice, that it is a local irritant, that it can in no way augment the local anesthesia, that it increases subsequent edema, and that if it relieves the pain which is felt as the anesthesia passes off it can do this only by a systemic and not by a local action, in which case it is evidently better to employ the morphine as an injection in some region other than that subject to a surgical operation. The solution Braun uses, probably the least immediately painful, the safest, and the most efficient yet advised, is as follows:

Eucaïne B, gr. j;  
Sodium chloride, gr. viij;  
Distilled water, f 3 ij.

This keeps well and can be boiled an indefinite number of times without deteriorating. It should be at about blood heat when injected. It is osmotically indifferent, causes no irritation, and produces an anesthesia which lasts from ten minutes to an hour, in accordance with the quantity injected,

the vascularity of the part, and the mechanical possibility of producing blood stasis in it. The methods of employing the anesthetic solution are: by infiltration, first of the skin, then of the deeper tissues, as elaborated by Schleich; by circumferentiation—*i.e.*, surrounding the area to be operated on by a ring of skin and subcutaneous injections; by injections close to the nerve trunk supplying the region to be operated on, as fully described by Oberst and Pernice, and termed by them regional anesthesia.

The infiltration method is open to the objections that it prolongs an operation and that it so alters tissues that there may be difficulty in distinguishing between the pathological and normal; moreover, the injection is in itself extremely painful if driven into an area acutely inflamed, and may carry pathogenic germs directly into blood-vessels. It is therefore not well adapted to operations in which fine dissection and the recognition of structures and tissues are essential, as for instance the removal of the deep glands of the neck, or the modern excision of a cancerous breast, or even the radical cure of hernia. It is, however, admirably suited for operations involving the skin, such as the removal of papillomata or epitheliomata, or the excision of nails; or for the removal of superficial and sharply circumscribed growths, such as fibromata or lipomata; or for circumcision, but in this case both the skin and mucous surfaces of the foreskin must be infiltrated along the line of incision; or for such operations as vasectomy or suprapubic cystotomy, or exploratory laparotomy, or tapping of hydrocele, or excision of veins, or exploration for the removal of foreign bodies.

The circumferential method finds its application in cases in which the surgical procedure is limited to the skin and subcutaneous tissues, and is also useful in operations on the fingers and toes, the injection being driven into healthy tissue, close to the proposed seat of operation and completely surrounding the member, a constricting band being first placed on the proximal side of the area selected for injection, having for its object the stopping of the circulation.

The regional method has at present its principal application in operations for felons and amputations of the fingers and toes; a one-per-cent. eucaïne solution is used for these injections, and is driven in close to the nerve trunks toward the base of the

digit, a rubber band being first placed above the latter.

Gottstein states that of ten stomach resections practised in the Breslau clinic in the last year eight were done under cocaine. Some of these operations lasted over five hours. There were also seventeen gastroenterostomies, four pyloroplasties, nine exploratory laparotomies, fifty gastrotomies, six goitre resections, and a great variety of other operations. An observation made by Gottstein is of especial interest and importance. He states that one reason for the adoption of local anesthesia was based on the hope that the post-operative lung complications so common after the use of chloroform and ether might thereby be avoided. In this hope he was disappointed; pneumonia and bronchitis developed about as frequently after belly operations as when general anesthetics were used.

Mikulicz performed two hundred and thirty-four operations on two hundred and twelve patients, using local anesthesia. One hundred and thirty-eight of these patients were subjected to abdominal operations; observations on one hundred and fourteen showed that twenty-seven (twenty-four per cent) suffered from post-operative pneumonia. The abdominal cases operated on under chloroform and ether show not more than five per cent. of post-operative pneumonia. Since cocaine was used, and often in its maximum dose, it seems not unreasonable to suppose that there resulted therefrom a crippling of the circulation which strongly favored congestion of the lungs. It should be stated that the cases operated on under cocaine were the most advanced and most difficult and were often so devitalized that operation under a general anesthetic would not even have been attempted.

For the painless induction of local anesthesia a fine, very sharp needle is required; this should be driven into healthy tissue. After the first drop of warm solution is injected there should be no further pain.

The rough handling of the peritoneum often causes intolerable anguish; this in itself is likely to prevent the general use of local anesthesia in abdominal surgery. There are, however, thousands of operations for the performance of which ether or chloroform is given which could be made absolutely painless by eucaïne injections, and it is to be hoped that this procedure will receive the general adoption which its safety and simplicity warrant.

## Reports on Therapeutic Progress

### *THERAPEUTIC SALINE SOLUTIONS AND THEIR USES.*

We have so often urged upon the readers of the *GAZETTE* the importance of hypodermoclysis and of intravenous injection that we quote with pleasure a paper by S. S. COHEN in the *Philadelphia Polyclinic* of October 15, 1898. Dr. Cohen wishes to call attention to a measure that has been practised by a few physicians for many years, but has recently come into great vogue, and he hopes it will be used by physicians more and more. He refers to the introduction under the skin (hypodermoclysis) or into the veins (venous infusion) of a solution which in chemical composition, specific gravity and temperature nearly approaches the inorganic portion of the blood-serum. It is sometimes erroneously called "normal salt solution"—a meaningless term. In chemical nomenclature a "normal solution" of any reagent is one that contains in a liter exactly enough of the given substance to combine with, or replace in combination, one gramme of hydrogen. "Salt" is a class term and does not indicate any particular substance. "Physiologic salt solution" or "physiologic saline solution" is (approximately) a decinormal solution, one-tenth the strength of "normal solution," of sodium chloride. It is called "physiologic" from its use in investigations upon the blood in the physiological laboratory. Solutions of sodium chloride containing 0.65 to 0.75 per cent. of that salt preserve the blood-corpuscles from shriveling when withdrawn from the veins, and do not bring about their disintegration. The total percentage of saline constituents and the proportions of the several salts contained in normal blood are variously stated by different observers. Of sodium chloride there is about 0.5 per cent., and of other sodium salts (sulphate, carbonate and phosphate) about 0.1 per cent. additional; potassium, calcium and magnesium salts bring up the total to a figure given by one observer at 0.645 per cent., and by others as high as 0.9 per cent.

The therapeutic saline solution cannot therefore be made to comply with an ideal or even average standard of blood-serum composition; and to insist upon a definite percentage and constitution is, in the present state of knowledge, useless pedantry. For most purposes a solution of sodium chloride will answer, and the convenient proportion

of a drachm to the pint (or its approximate equivalent of eight grammes to the liter) is easily remembered, and sufficiently accurate.

In cases of threatened or actual diabetic coma, or in any other condition in which it is deemed necessary to alkalinize the blood, sodium carbonate may be substituted for a portion of the sodium chloride; and the writer has found one-third of the total saline strength a convenient and safe proportion of this agent when used by the subcutaneous method.

Dr. Locke, of Boston, and Dr. H. A. Hare have suggested a general formula for "artificial serum," which contains in the liter:

Calcium chloride, 0.25 gramme;  
Potassium chloride, 0.1 gramme;  
Sodium chloride, 9.0 grammes.

It is extremely important, whatever formula be employed, that the solution and all the apparatus used be properly sterilized. In an emergency, in any household, a teaspoonful of sodium chloride may be dissolved in a pint of tap water, and the solution sterilized by boiling. If the water contains foreign particles that cannot be strained out, and there is no proper filter at hand, the water must be allowed to stand, after boiling, until sedimentation occurs, when the supernatant fluid should be poured off, again sterilized, and used. When time permits, distilled water, filtered water, or other prepared clear water should be used for the solution. One may sometimes find Poland water, which contains very little mineral matter, useful and handy.

The therapeutic saline solution—as Cohen prefers to call it, thus avoiding the misleading terms "physiologic" and "normal"—should be introduced at a temperature of about 38° C. or 100° F.; and if the process is slow care should be taken to maintain the heat meanwhile. It may then be introduced directly into a vein (a process often erroneously termed "transfusion," but properly called "venous infusion"); or it may be introduced into the circulation indirectly through the absorbents beneath the skin ("subcutaneous infusion" or "hypodermoclysis"); or it may be introduced into the peritoneal sac ("peritoneal infusion"); or it may be introduced into the intestine ("enteroclysis"). Subcutaneous infusion is the usual and most convenient method. Venous infusion is resorted to when time is a prime object; or peritoneal infusion, as especially advocated by Sir B. W. Richardson in the collapse of cholera, may be employed when

subcutaneous infusion is too slow, and the venous method dangerous or inexpedient.

Enteroclysis may be used when time is not at all pressing, and one desires to avoid puncturing the skin. It is uncertain, but often efficacious. The writer's own resort to the therapeutic saline solution is becoming more and more frequent; and he has used all the methods mentioned, except that by the peritoneum. Venous infusion, however, he is now less inclined to resort to, excepting under distinct stress of urgency, as the hypodermoclysis is reasonably prompt; and, indeed, for one who is neither a surgeon nor a physiologic investigator, unfamiliarity with the manipulations of venous infusion—comparatively simple as they are—may act as a deterrent, or induce greater delay while skilled assistance is being sought than the difference between the methods as to the rapidity of absorption.

#### *TAPPING AND VENESECTION IN NEPHRITIS AND UREMIA.*

At the recent meeting of the British Medical Association EWALD, of Berlin, contributed to the Section on Pharmacology and Therapeutics a practical paper on this subject. After pointing out that it is a well known fact that the question as to how diuretics act in kidney diseases is not yet settled, and that some still believe that their action is due to increased blood-pressure, or to some relief of the circulation through the kidneys, most authorities at the present time are of the opinion that they act by direct irritation of the secretory elements of the kidneys. However this may be, this much is certain, that the effect of the heightened diuresis or the diversion of fluid to the intestinal canal, provided of course it succeeds by internal medication, is to cause but very slow absorption of fluid in edematous tissues or in the peritoneal cavity or other serous spaces. On the other hand, practical experience teaches us that diuresis always increases as the decrease of fluid in the subcutaneous tissues and in the serous cavities progresses.

Physicians have always tried to dispose of these transudates by mechanical means. From the various serous cavities the fluid is withdrawn as much as possible by puncture. From the subcutaneous tissue it is withdrawn by means of diaphoresis, by hot baths, by scarification, and by puncture with small needles (Southey, Gerhardt, Curschmann, and others). In the writer's opinion, how-

ever, the treatment by none of these methods is carried out energetically enough, and the scarifications and removal by puncture with small needles are not complete enough; and secondly, they have too many inconveniences attached to them.

Puncture for ascites and pleurisy is done too seldom—that is, the physician waits until a considerable amount of fluid has collected. Several weeks is allowed to elapse between the punctures, and in the meantime the organism is exposed to all the dangers, local and general, that a collection of fluid in a serous cavity brings with it. The spontaneous resorption of the fluid is rendered extremely difficult by the pressure exerted upon the blood and lymph vessels of the pleura and peritoneum by the presence of the fluid. The endothelium of the serous membrane suffers in time in its nutrition. The organs contained in these cavities are more and more compressed and their function is disturbed.

These are sufficient grounds to justify the making of punctures in such cases as often as the slightest indication presents itself. To this it is objected that experience shows that transudates removed by puncture are renewed very rapidly, and some have even believed that their removal of itself constituted an irritation sufficient to lead to their rapid renewal. It has been thought, too, that the removal of a transudate deprived the organism of an important amount of albumen. Neither of these objections holds. The albumen in such cases is in a form in which it cannot be of use for organic metabolism, and it is in such small quantities that its loss, as the author showed years ago, cannot be of the slightest importance. As to the renewal of the fluid, that is due to the course of the disease, not to the puncture for its removal. When the affection grows better the repeated punctures cease, and they have had an important influence for good.

In such cases the author punctures and withdraws the fluid that has collected as often as enough has accumulated to make puncture fruitful—that is, under some circumstances every third or fourth day—and with excellent results. He is convinced that he has by this means, and the proper treatment of the edema, brought about the cure of nephritis in a number of cases.

The drainage of the edema the author effects by means of long needles such as are used for tapping the pleura. They are inserted into the subcutaneous tissue, as far as

possible parallel to the skin, and the part that projects is covered with a layer of salicylic cotton and iodoform collodion. To the end of the cannula a rubber tube is attached that hangs down alongside the bed, in a vessel placed to receive the fluid that trickles through the tube. By means of a safety-pin the rubber tube is fixed on the mattress and not allowed to pull upon the needle persistently. Into each leg one or more needles are inserted, and it is thus possible to withdraw three to five liters of a clear, amber-colored fluid in a day. As the subcutaneous areolar tissue is everywhere freely in communication with other parts, the fluid is withdrawn not alone from the legs but from the abdominal walls and the scrotum as well. As because of the edema the limbs are heavy and difficult to move, it is not difficult to keep the patients quiet in that position best calculated to favor the outflow of the fluid.

Of course, these manipulations must be carried out under the strictest antiseptic precautions. Erysipelas, gangrene, or any other serious accident, the author has never seen except in one case. Erythematous conditions sometimes set in, but disappear promptly under an alcohol bandage. This procedure has these advantages over scarification: it is much more cleanly, does not cause the skin to be soaked with edema fluid for long periods, and much larger quantities of fluid are removed with less inconvenience. In this way he has in a single case of chronic nephritis, from September 10 to December 3, 1896, removed 22,500 cubic centimeters of fluid, and during the period from October 6, 1896, to March 13, 1897, 140,000 cubic centimeters of ascitic fluid in forty punctures. During December and January a puncture was made about every third day. Four punctures of the pleural cavity were made and fifteen liters of fluid removed. The result was complete disappearance of the anasarca and complete recovery of the patient.

Ewald remarks in concluding that repeated careful estimations of the albumen in the ascitic fluid showed that it was between 0.6 and 0.75 per cent., and the amount of albumen thus removed then was equal to about 3136 grammes of meat.

The symptoms of uremic intoxication present, as is well known, a most varied picture. They may occur in acute or chronic form, from slight headache and nausea (gastric catarrh) to uncontrollable vomiting and diar-

rhea, from nervous unrest and a feeling of anxiety to the severest epileptiform attacks, from the lowest grade of benumbed sensation up to deepest coma. They may present themselves in varying forms. They may appear under the form of chronic insanity, or of periodic attacks of confusional insanity, or as light attacks of delirium, or may simulate asthma, angina pectoris, or cardiac asthma; they may be complicated by hemiplegia or monoplegia, anesthesia, slight paresis, attacks of vertigo, nose-bleeding, or disturbances of sight or hearing, etc.

There is manifestly always question of an autointoxication—that is, of a toxic effect of products in the circulation which should have been excreted by the kidneys. May not these products give a direct irritation or act indirectly by augmentation of the blood-pressure? Nothing would seem more feasible and more likely to be of benefit than to withdraw a portion of the blood and so decrease the absolute amount of toxin and make the blood more watery, especially if the physician infuses, as does von Leube, after the venesection a certain quantity of physiological salt water. Medical men have, in the author's opinion, in recent times neglected venesection too much in such cases. Long ago Archibald Pitcairn (1713) recommended venesection.

Bartels got excellent results from venesection in cutting short acute attacks of uremia. Krönig and Senator have recommended it after personal experience in recent years. The author is far from saying that venesection ought to be done in every case. But when the strength of the patient will permit it, and where the conditions of the heart do not prevent it, as soon as the other well known remedies have no quick effect he should be treated without delay by plenteous blood-letting—that is, by the abstraction of 200 to 400 grammes of blood. In future he will combine with the bleeding an infusion of saline water, as von Leube recommends.

A few years ago Jacobi, of New York, introduced in medical literature the words of warning, *Nil nocere* (Be sure you do no harm), and they have met with universal approval. But by venesection under such circumstances we can never do harm. The proportion of permanent success of this method of treatment has, in the writer's cases, been equal to 62½ per cent. of the occasions on which it has been employed. That furnishes ground enough, to his mind, to justify him in recommending the employment of venesection in uremia.

*THE PHYSIOLOGICAL ACTION OF HYDRASTINE HYDROCHLORATE.*

PHILLIPS and PEMBREY contribute to the *British Medical Journal* of October 8, 1898, a paper with this title. They begin their paper by telling us that *hydrastis canadensis*, yellow root or golden-seal, is a small herbaceous perennial, indigenous to most parts of the United States and Canada; and that it belongs to the Ranunculaceæ. In the rhizome of the plants are contained the following active principles: hydrastine, berberine, and canadine; in addition to sugar, albumen, and extractives, there is a resin and a small quantity of an ethereal oil. Hydrastine is a derivative of isoquinoline, and its formula, according to Freund and Will, is  $C_{11}H_{11}NO_4$ . It was first isolated by Durand in 1851.

In their experiments pure hydrochlorate of hydrastine was used on account of its solubility in water. A few experiments were made with pure hydrastine and with fluid extract of hydrastis; but on account of the insolubility of the former and the presence of alcohol and other substances in the latter, the results were unsatisfactory. The method of administration of the hydrochlorate was by subcutaneous injection of aqueous solutions.

In frogs 20 decimilligrammes ( $\frac{1}{5}$  grain) caused within twenty minutes paralysis of the fore limbs, succeeded in a minute or two by spasms similar to those produced by strychnine; the frog recovered by the next day. A dose of 81 decimilligrammes ( $\frac{1}{3}$  grain) caused convulsions within fifteen minutes; the body during a spasm was rigid, and rested on the mouth and toes of the hind limbs. Death generally occurred within two hours.

In mice a similar dose to the last produced convulsions within fifteen minutes, and death within half an hour. A dose of 486 decimilligrammes ( $\frac{1}{2}$  grain) had apparently no effect upon rats, but double that amount caused within twenty minutes paralysis of the hind legs, succeeded within half an hour by convulsions, and by death within three hours. A dose of 0.1296 gramme (2 grains) quickened these stages and caused more marked convulsions, together with salivation.

In rabbits no effect beyond a quickening of respiration and increased liveliness was produced by a dose of 0.7776 gramme (12 grains). In the case of a half-grown rabbit 11.5 grammes ( $15\frac{1}{2}$  to 23 grains) caused convulsions within twenty minutes; the head was thrown back and the legs extended; tonus

and clonus were well marked, and death occurred within an hour and a half.

The cat is much more susceptible to the action of the drug than is the rabbit. A dose of 0.6480 gramme (10 grains) produced a very profuse salivation, commencing within thirty minutes of the injection; the respiration was very rapid, and there was considerable depression. In all cases there was marked loss of appetite, widely dilated pupils, slight spasms, and incoordination; in some there was also vomiting. Death followed convulsions in one case—a strong, full-grown male—on the second day after a dose of one gramme (15.4 grains).

Three or four frogs after showing typical convulsions recovered when kept in moist surroundings; one frog remained apparently well for five days, but on the sixth day was again seized with convulsions and died.

A kitten two days old recovered after spasms produced by a subcutaneous injection of 108 decimilligrammes ( $\frac{1}{4}$  grain) of the drug.

The direct application of two or three drops of a solution containing one part of hydrastine hydrochlorate in 200 parts of tap water produced a marked effect upon the heart of a frog. The rate of the contraction was diminished, but the force and duration were augmented; thus in one case there were two contractions in fifteen seconds as compared with two in four seconds before the application of the drug, and the duration and force of the ventricular contraction were more than doubled.

After the application of a few drops of the solution (1 in 200) to the sinus of the frog's heart, strong faradic excitation of the vagosympathetic produced no inhibition. Stimulation of the crescentic groove, however, stopped the contraction of the heart. The effect of the drug was chiefly upon the sinuauricular junction. Thus, if the contractions of the auricles and ventricle were separately recorded, no appreciable effect was observed if the surface of the ventricle, or of the auricles, was painted with the solution of the drug. The application, however, of the solution to the sinuauricular junction quickly produced a slower and more powerful beat of the ventricle and auricles; finally these ceased to beat and the sinus alone continued to pulsate.

The action of the vagus was also suspended in mammals by the direct application of the drug to the heart. Thus stimulation of the vagi did not stop the contraction of a rabbit's

heart after the injection of ten minims of 1-in-200 tap water at 37° into the pericardial sac. Before the injection a much weaker stimulation readily produced inhibition.

The drug produced contraction of the arterioles, but this effect appeared to be brought about chiefly through the nervous system. There was, however, some local action, as shown by the application to an inflamed conjunctiva of a solution containing one part of hydrastine hydrochlorate in 200 parts of tap water.

It has already been mentioned that poisonous doses of the drug produce convulsions similar to those caused by strychnine. In frogs the cutaneous sensibility is so much increased that a slight touch or puff of wind suffices to send the frog into convulsions. The convulsions are of central origin, for section of the nerves abolishes them. The rate of contraction of the muscle is from eight to ten per second. The tonic contractions are followed by well marked clonus. In some cases the drug first causes partial paralysis, but this in most cases appears to be due to the local action of the drug around the seat of injection. Thus in a rat the left hind limb was paralyzed for motion and sensation after the injection of two grains of the drug dissolved in 15 minims of tap water. This limb was not so much involved as the others when later the body was convulsed. They observed in cats that the pupils were stationary at first, then widely dilated, and even more so the day after the injection of ten grains of the drug.

The direct application to the frog's nerve and muscle of a solution containing one part of the drug in 1000 parts of tap water had apparently no effect upon their excitability. A stronger solution, 1 in 200, appeared to act first upon the nerve endings and then upon the muscle. A gastrocnemius muscle placed in a watch-glass containing such a solution failed to respond to stimulation of the sciatic nerve, which was outside of the liquid, but contracted on direct stimulation. Soon the muscle became more opaque in appearance and quite inexcitable.

In both warm-blooded and cold-blooded animals fatal doses of the drug caused respiration to cease some time before the failure of the heart's action.

No effect was observed upon the digestive system of the rabbit and rat, but in the cat there was marked salivation, vomiting, and loss of appetite for several days after a large dose of the drug. In one cat, which died

after receiving one gramme (15 grains), there was no gastric inflammation, but much bile in the gall-bladder and bile-stained liquid in the stomach and upper part of the small intestine.

The saliva collected within fifteen minutes and twenty-five minutes of the injection of 0.648 gramme (10 grains) of the drug into a cat produced fatal results in frogs; the quantity of saliva injected hypodermically was fifteen and twenty minims respectively.

The drug is rapidly excreted by the kidneys, for the authors found that the urine passed within twenty-five minutes of the injection of 0.648 gramme (10 grains) into a cat produced typical convulsions in a frog, but a toxic quantity was still discharged on the second and third day. Normal urine when injected into a frog produced no effect.

Pregnant rats and rabbits did not abort even after receiving large doses of the drug, but one cat aborted twelve days after a hypodermic injection of one gramme (15.4 grains), a second cat four days after, and a third cat twelve hours after a dose of 0.6480 gramme (10 grains). The fetuses in each case showed no sign of life, and there is little doubt that they were killed by the drug before abortion commenced. The difference between the results in the case of the rabbits, rats, and cats is to be attributed to the marked susceptibility of cats to the action of the drug. The liquor amnii was found by experiments on frogs to contain poisonous doses of the drug.

Experiments upon rabbits and cats failed to show any action of the drug in producing contraction of the muscle fibers of the uterus.

Rigor mortis comes on exceedingly quickly after death from poisonous doses of the drug, in some cases even within a minute or two of death. The rigidity is so marked that it was possible to hold the dead body of a cat upright by grasping one of its hind limbs.

The following conditions were observed: Marked distention of the right side of the heart, congestion of the pia mater, and an abnormally large quantity of bile.

Weak solutions, 1 in 1000, quickly produced the disintegration of infusoria, and putrefaction was delayed or suspended in the bodies of animals poisoned by the drug.

#### *THE TREATMENT OF ENTERIC FEVER.*

WALGIER (*Centralblatt für Innere Medizin*, Sept. 19, 1898) discusses the treatment of this disease with the serum obtained from convalescents. He relates in detail four

cases so treated. All four patients presented an unfavorable prognosis before the injection was given. Cases 1 and 2 occurred in decrepit and poor women, whereas the third case, in a strong, healthy young woman, was of a severe type. In Cases 1 and 2 the general condition improved rapidly after the injection. In Cases 3 and 4 the disease lasted longer, but here also the good effects of the injection were very obvious. The author remarks that under this serum treatment the anatomical process may gradually recede, or it may continue for some time, or even perhaps spread. In Cases 3 and 4 relapse occurred, but the author thinks that if they had not been injected they would probably have died. The repetition of the injection in the one attack has, in the author's opinion, no object, but it is different in the relapse, which he looks upon as a fresh attack. The amount of serum injected was ten cubic centimeters. Walgier apparently thinks that the use of an efficient serum treatment will render Widal's test unnecessary.—*British Medical Journal*, Oct. 8, 1898.

**A DISCUSSION ON THE THERAPEUTIC  
VALUE OF RECENT SYNTHETIC  
ANALGESICS: THEIR BENEFITS  
AND ATTENDANT RISKS.**

In the *British Medical Journal* of October 8, 1898, STOCKMAN, of Glasgow, writes on this topic.

In opening this discussion the speaker stated that he was at the outset confronted by two difficulties, the first of these being the very large number of substances with which he should have to deal if he made the attempt to overtake all the synthetic analgesics brought forward during recent years, and the second being that Dr. Lockhart Gillespie enjoined him to compress his remarks within the space of twenty minutes. Under these circumstances it was quite impossible for him to do more than glance briefly at a few of the more important analgesics, and to touch on their more salient characteristics. This is to some extent an advantage, as, as he said, he could not pretend to have a practical clinical knowledge of the relative value and defects of more than a small number of these substances, for as it requires long and careful observation to become thoroughly acquainted with the possibilities and best modes of using even the most commonly employed medicinal remedies, so in practise he has confined his clinical observations to a

small number of analgesics only. Most of them have been introduced not so much in the character of analgesics as in that of antipyretics, but at the present time, and speaking very generally, their employment to reduce temperature has assumed less importance than their value in reducing pain. This is due very largely to the fact that the direct antipyretic treatment of feverish conditions has to a great extent gone out of fashion owing to the more specific treatment by means of serum antitoxins, which at present is receiving such a wide trial.

Long experience has now demonstrated very clearly that the administration of medicines which—so far as we know, at least—merely reduce temperature has comparatively little beneficial effect on the course of a continued fever, such as typhoid, and as a routine method of treatment they have been practically abandoned. On the other hand, their combined power of reducing temperature and of relieving the pain and discomfort consequent on fever make them of great practical value in certain diseases accompanied by marked pyrexia. From the author's own experience he mentions two of these especially—namely, acute rheumatism and malaria—where the combination of an analgesic and antipyretics, such as phenacetine, with the more specific remedies, salicylates and quinine respectively, conduces very greatly to the comfort of the patient, if not to a direct cure of the disease. It is, however, more directly with their value as analgesics that we are concerned to day.

At the outset the author states his opinion that no one of them hitherto tried acts in an ideal way, either in reducing temperature or in relieving pain, and that no one is without more or less serious drawbacks for general and frequent use in practise, although he is inclined to think that their dangerous effects have been greatly exaggerated. Both their remedial and poisonous actions can be best and most clearly studied by briefly tracing their chemical genealogy, when we shall see that all of them are closely related, both chemically and in their effects, to the well known substance phenol, and to a body very nearly allied to it, anilin. By chemical modification of these bodies and their derivatives changes in action can be brought about in certain directions, our efforts being directed to lessen their toxicity and to increase their analgesic action. Unfortunately our studies as to the relationship between chemical constitution and physiological action have not



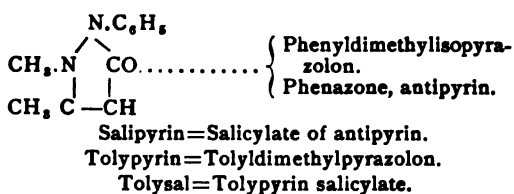
yet led us to such a wide and comprehensive grasp of the subject as to enable us to prophesy beforehand what will be the result of any given alteration; hence each new aspirant for therapeutic favor has to undergo a long and tedious experimental trial before its ultimate value can be determined.

To illustrate the close chemical relationship of these substances, and for easy reference as we go along, the author has put up a table of their structural formulæ, from which it will be seen that their relationship to phenol is always more or less a close one:

|   |                                    |
|---|------------------------------------|
| $C_6H_5OH$ .....  | Phenol.                            |
| $C_6H_5COOH$ .....  | Benzoic acid.                      |
| $C_6H_4(OH).COOH$ .....   | Salicylic acid.                    |
| $C_6H_5NH_2$ .....  | Anilin.                            |
| $C_6H_5N \begin{cases} /H \\ \backslash CO.CH_3 \end{cases}$ .....            | Acetanilid, antifebrin.            |
| $C_6H_5N \begin{cases} /CH_3 \\ \backslash COCH_3 \end{cases}$ .....          | Methylacetanilid, exalgin.         |
| Acetyl-, benzoyl-, salicyl-acetanilid.  |                                    |
| $C_6H_4 \begin{cases} /OC_2H_5 \\ \backslash NH.COCH_3 \end{cases}$ .....     | Ethoxyacetanilid, acet-phenetidin. |
|   | Phenacetin.                        |
| $C_6H_4 \begin{cases} /OC_2H_5 \\ \backslash NH.C_2H_5O_2 \end{cases}$ .....  | Lactyl phenetidin.                 |
|   | Lactophenin.                       |
| $C_6H_4 \begin{cases} /OC_2H_5 \\ \backslash NH.COCH_2NH_2 \end{cases}$ ..... | Amidophenacetin.                   |
|   | Phenocoll.                         |
| $C_6H_5HN.NH_2$ .....   | Phenylhydrazin.                    |
| $C_6H_5HN.NH.COCH_3$ ...  | Pyrodin.                           |
|   | Acetylphenylhydrazin.              |
| $C_6H_5N \begin{cases} /H \\ \backslash N=C_2H_5O_2 \end{cases}$ .....        | Antithermin.                       |

Phenylhydrazin is formed from anilin.

By heating together phenylhydrazin and aceto-acetic ether, and treating them with methyl iodide, antipyrin is formed.



There are numerous other analgesic bodies formed in the same way by ringing the changes on the various kernels, but it is not necessary to go into them further, as we see that all these substances are closely allied chemically, and there is little difficulty in tracing also their close affinity in action. In the doses ordinarily given phenol exercises little effect on the nervous system or blood, but when these doses are exceeded the cord and brain are greatly depressed by it, leading to stupor and the abolition of reflexes, while the blood-corpuscles are broken down, the temperature falls to an alarming degree, and excessive sweating occurs, effects which can be traced all through the series.

In salicylic acid the toxicity has been greatly lessened, but large doses produce cutaneous anesthesia in the dog, with ataxic gait and stupor; while none of us are unaware in man of the skin eruptions, excessive sweating, depression of the heart and anemia, which are apt to follow on its therapeutical use. Its analgesic effects in acute rheumatism are also well known.

When we come to consider the anilin we find that its action is such as to make its medicinal use highly dangerous. It is a very powerful depressant of the nervous system, causing stupor and general depression, but its most remarkable effect is on the blood, where such changes are wrought in the hemoglobin as to cause marked cyanosis of the skin and severe dyspnea.

Phenylhydrazin has also a most destructive effect on the red blood-corpuscles, and converts their hemoglobin into methemoglobin, besides causing thrombosis and marked changes in the kidney. So much is this the case, that any combination of it which is not a very firm one tends to be extremely poisonous, and on this account two of the substances already mentioned, namely, pyrodin and antithermin, are to be reckoned as poisonous rather than as therapeutical agents in practise.

Coming now to derivatives of these substances, which have been so modified chemically as to bring into prominence their beneficial effects and to diminish their poisonous actions, we find that all of them have substantially the same kind of action. This consists essentially in an action on the gray matter of the spinal cord, by virtue of which the conduction of painful impressions from the periphery is rendered more difficult. At the same time the perceptive activity of the gray matter of the cerebrum is slightly but not very visibly depressed, and no doubt the perception of impressions is to a certain degree lessened. It is on these actions that their analgesic power depends. Motor power and conduction are affected at the same time, but to a much less degree, while the brain retains its ordinary acuteness; hence the person, while obtaining alleviation from pain, is able to go about and perform his ordinary business, and herein lies the great practical utility and value of this class of analgesics.

Looking at our requirements as physicians, we need two analgesic substances having somewhat different degrees of action, one which will exert its effects on the pain-

conducting paths in the cord, leaving the remainder of the nervous system intact or nearly so, and another which in addition will exert a hypnotic or gently narcotic action on the cerebrum. One such drug would suffice if the difference in effect could be obtained by graduating the dose. Now it would be too much to expect that substances having such a pronounced action on the nervous system as these newer analgesics have should not occasionally cause unpleasant symptoms by manifesting too great an activity in certain directions, leading to undesired, and sometimes alarming, results. It would be wonderful if it were not so, for drugs, like men, have the defects of their qualities. Thus we find that their depressing effect on the medullary centers may lead to respiratory and cardiac embarrassment; their action on the vasomotor center may cause sudden dilatation of the blood-vessels, with consequent faintness or syncope, while a continual dilatation leads to severe sweating, edema, and eruptions on the skin and mucous membranes. Any great depression or collapse from an action on the nervous system is extremely rare, and probably has only occurred in persons greatly reduced by disease. We shall never get an analgesic substance quite free from the risk of causing such slight accidents and inconveniences, because these are simply exaggerations of the action which we wish it to produce on the nervous system, and it is quite impossible that we can accurately foretell the exact degree of sensitiveness of a patient's nervous system to such drugs. This varies not only in individuals but in the same person at different times. The most we can hope to accomplish in this direction is to diminish the chance of such inconvenience by using a drug which is not too active, so that by increasing the margin of dosage we may at the same time increase the margin of safety.

On the other hand, it is a very different matter when we come to consider the action of these substances on the hemoglobin and their effects in causing disintegration of the red blood-corpuscles and anemia. These must be uncompromisingly regarded as drawbacks to their use, for they subserve no useful purpose, and have no bearing on their action as analgesics. Fortunately many of these drugs have this effect only in a subordinate degree, and in ordinary doses and under favorable conditions never manifest it.

Owing to this action being so pronounced in the case of acetanilid, the author has given

up its use entirely for years past, and all the more willingly because the smallness of its dose easily allows one to overstep the margin of complete safety. Antipyrin is very much safer, and on the whole acts well as an analgesic, but it is seldom used now by the writer, who is convinced that phenacetine is equally powerful and at the same time much less apt to be attended by occasional disagreeable consequences. The only other member of the series in which he places equal confidence as an analgesic is lactophenin, a substance practically identical in constitution with it. He has never seen any unpleasant results of any kind from either of these, although he is aware that a few such cases have been reported.

In conclusion, the author states his opinion that if given with care and in suitable cases ill effects are extremely infrequent. Their value, however, is limited by the fact that they do not subdue very severe pain.

Dr. Phillips said he submitted that salophen, phenocoll hydrochloride, apolysin and methylene blue are substances of high therapeutic value, and without attempting to arrange them in order would single out salophen as of exceptional promise; that agathin, being slow, unreliable, and even dangerous in its action, should be avoided; that some hesitation should be exercised in employing analgene and citrophen because of their toxic action on the blood, in using euphorin and lactophenin because of their inconstancy and tendency to produce collapse, and in choosing malakin because of its tardy action; and that pyoktanin, ferripyrin, pyramidon, salipyrin, tolipyrin, tolisall, and even salocoll, although they may be well and safely used as substitutes for better remedies, are unnecessary.

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#### A PRELIMINARY NOTE ON THE PHARMACOLOGICAL ACTION OF *STIPA VIRIDULA*.

GILLESPIE contributes to the *British Medical Journal* of October 8, 1898, a valuable pharmacological study of this American plant. He tells us that in some parts of the United States, especially in those which lie further south, travelers on horseback or cowboys driving herds of cattle from one place to another over the higher prairie regions are often astonished and put to no little inconvenience when they wake some morning in the encampment chosen for the night's rest to find their horses, and maybe their cattle, unfit to proceed on the journey. They,

should the facts be new to them, imagine at once that the animals showing signs of indisposition have been poisoned; indeed, the severity of the symptoms is often so great that speedy fatal results are generally apprehended.

The traveler's horse is a pitiable object. He stands with head and tail drooping, his form quivering, streams of sweat pouring down his sides, his respiratory movements hurried and panting, his heart's action increased in force, judging by the evidence of palpation; while his excretion of urine is markedly increased, with symptoms of irritation and strangury accompanying its expulsion. The animal is incapable of movement. He appears about to die. As far as the writer's informant could say, no death, however, either in horses or cattle, is known to have actually been caused by the grass, for all these symptoms follow ingestion of a rare grass, the *Stipa viridula*, growing in scattered bunches over the elevated prairies in New Mexico and Texas.

The facts given above have been derived from descriptions of the effects as personally studied by an acute observer who has lived for some years in the country mentioned, and who, indeed, presented the writer with the grass whose virtues he is investigating.

The plant grows in clumps or bunches of closely-applied, tall, elegant stems, surmounted by a large culm. The stems are firm, jointed, and when dry are straw-like. They rise to a height of two feet or more from thick masses of short rhizomes, bearing numerous rootlets in company with several other stalks. When grown from seed it appears not to flower during the first year, but, sending up a few leaves, extracts from the earth enough nutriment, which is stored in the rhizomes, to permit of its full maturation during the following season. The culms are jointed, long, narrow-leaf blades springing from each node. The terminal part bears a bloom, with hermaphrodite spikelets, each one-flowered, and with two empty glumes. The flowering glumes are entire, hard, narrow, and furnished with a long, stout, persistent awn. The ends become in the course of time very hard in texture. It is often termed locally "sleepy grass," but has been identified, through the kindness of Professor Balfour, with *Stipa viridula*, whose properties, he also informs the writer, have not been thoroughly investigated, as far as can be judged from reference to the literature

available in this country or from the statements of experts.

Haeckel mentions that this *Stipa* exerts toxic effects on cattle, that *Stipa inebrians*, another American species, acts similarly, in addition to the *Stipa sibirica* of the Russian steppes. The results which follow the ingestion of *Stipa viridula* are so well illustrated by the term "inebrians" that the active principle present in them may probably be discovered to be the same. Another Russian variety (*Stipa capillata*) causes very great annoyance to shepherds, as the pointed, hairy callus of its glume can work its way without much trouble into the skins of sheep, and penetrating the epidermis, aided by the backward direction of the hairs which cover it, frequently reaches the vital organs of the animal, and may bring about a fatal result. *Stipa spartea*, or the "porcupine grass" of North America; *Stipa tenacia*, or the esparto grass of Spain; and *Stipa pennata* and *Stipa tirea* of Russia, are closely allied forms.

From the personal evidence tendered, the action of the grass on horses and cattle—it has no action as far as his information goes upon sheep—resembles that of a narcotic, along with stimulation of the respiratory and urinary center, disturbance of the cardiac mechanism, and the production of irritation in the urogenital tract. In increasing the flow of sweat it acts like opium. In about two days the more acute symptoms have passed off, but the general health of the animal suffers for some time. One of the inhabitants of the district was, at the writer's request, induced to eat some of the fresh grass, and experienced very much the same symptoms; here, however, his informant cannot enter into particulars.

The results which ensue upon the ingestion of *Stipa viridula* have nothing in common with the symptoms caused by the loco-weed. These are not due to any definite plant, but to organisms living on and swallowed with various kinds of fodder.

A weak solution of hydrochloric or acetic acid in water was found to be the most effective in the extraction of what presumably contains the active agent. Alcohol did not remove so much of the active body; its addition to the concentrated watery extract produced a copious precipitate, which was not inactive.

This paper simply purports to be a preliminary notice, and quantitative experiments have been found to be impracticable at pres-

ent owing to the difficulty hitherto found in separating some active body stable enough to resist drying and weighing even in the form of a salt. Injections of a liquid extract were not satisfactory; they certainly produced symptoms, but to what these symptoms were due it was impossible to say. Again, the acid extracts could not be used without at least partial neutralization, and this precipitated much of the solid material present.

If to an extract, made with dilute acetic acid by percolation for a day or two, carbonate of sodium or caustic soda was added, an almost white precipitate was produced, but a large excess of the alkali was required before the total precipitate obtainable appeared. The filtrate of this was yellow-brown in color, and if shaken up with ether, separated, and acidulated, and water added to the ether, minute quantities of a white amorphous body were obtained. The precipitate, washed on a filter-paper with dilute acetic acid, yielded, on adding carbonate of sodium to the filtrate, a precipitate of small white crystals or flocculi, soluble on heating, reappearing on cooling, soluble in acids, but precipitated partially by alcohol. The precipitate remaining dissolved in dilute hydrochloric acid, and only gave a small precipitate on adding an alkali, unless great excess was used, when a much denser yellow-white substance formed and fell. On evaporating any of the solution to dryness, when by evaporation of water the acid remaining became of great strength, decomposition occurred with the formation of colored bodies. Pure sulphuric acid added to the flocculi which fell on the addition of an alkali, after they had been purified and dried at a low temperature over sulphuric acid, gave a bright red violet color.

Alcoholic extracts were used at first, with a strength equal to two parts by weight of the grass in one of the extract. This extract was gently heated to drive off the alcohol, and then made up to its former strength with water. Analysis showed that it contained: Total solids, 9.88 per cent.; ash, 2.68 per cent.; organic solids, 7.20 per cent. Chlorides and sulphates were present.

*Experiment I.*—5 48 P.M. The frog, weighing 22 grammes, was injected with 6.53 cubic centimeters of the extract, or from 1.06 grammes of grass, equal to 24 cubic centimeters of the extract and 48.18 grammes of the grass per kilo.

5.46 P.M. A discharge of green feces from the bowel.

5.46½ P.M. Lying flat on back, motionless.

5 47 P.M. Able to move very sluggishly.

5.48 P.M. Respiration only 32 per minute, deep and full; one hind leg dragged.

5.55 P.M. If turned on back, is unable to regain normal position; breathing, 85 per minute, shallow; sits up with difficulty; cannot jump; hind legs weak.

5.58 P.M. All legs weak, but also in spastic condition.

6.10 A.M. Frog a little more lively; can turn half over from back, but legs stiffen on exertion; waddles, does not jump, bringing fore legs alternately high and straight out, and dragging hind legs; sits with hind legs curled up in front resting on fore legs.

Later. Gradually recovered from all the symptoms.

*Experiment II.*—12.5 P.M. A frog weighing 20.5 grammes was given an injection of the extract equal to 24 cubic centimeters per kilo, or 48 grammes of the original grass. The organic solids equaled 0.87 gramme per kilo.

12.40 P.M. Lying prone; irritation of feet caused movement of leg; no respiration or heart beat visible. Practically dead. Killed; the heart when placed in saline solution beat twenty-three times in the minute; the ventricular systole much prolonged, the auricles contracting more strongly. Two drops of the extract dropped upon the heart increased the vigor, but not the rate of its beat.

12.53 P.M. Heart stopped.

*Experiment III.*—Another frog, injected with 0.97 gramme per kilo, showed similar symptoms, but to a slighter degree, and recovered from the effects in some hours.

*Experiment IV.*—The very copious precipitate which fell on the addition of a moderate excess of carbonate of sodium was treated with dilute acetic acid after it had been caught on a filter-paper, and washed with a solution of the same salt. The acetic extract was made alkaline again with the carbonate, and thoroughly shaken up with ether in a separator. The watery portion of the mixture was removed after twenty-four hours, and a small quantity of a solution of hydrochloric acid in water added to the ether and shaken up with it. The acid watery solution was then removed from the ether. Carbonate of sodium added to alkalinity, and the resulting white precipitate washed by decantation with weak solutions of the salt.

Only a qualitative experiment was made as to the effect of this precipitate, which was

only slightly crystalline under the microscope, largely amorphous. Attempts to weigh the amount of the actual body present at 100° C. failed.

A large rabbit was injected at 12.50 with 25 minims of a suspension of this precipitate, which was so fine that no difficulty occurred in its injection.

12.50 P.M. Twenty-five minims injected under skin of back. Pupils widely dilated.

12.52 P.M. Legs paretic; shivering.

12.53 P.M. Both front legs lame.

12.54 P.M. Pupils contracted, breathing hurried, restless in aimless way.

12.57 P.M. Every now and then stopped moving, and seemed about to fall asleep.

1 P.M. Inclines to one side when moving, cannot hop, drags hind legs.

1.1 P.M. More restless again; movements when walking similar to crawling.

1.2 P.M. Pupils less contracted.

1.3 P.M. Heart beating 143 to minute; breathing rapid.

1.5 P.M. (fifteen minutes' interval). Same dose repeated. Pupils dilated at moment; contracted almost at once after the injection.

1.6 P.M. Appeared frightened from imaginary causes. Went backwards for some yards. Pupils almost pin-point, but changing very irregularly. Breathing 184 a minute.

1.10 P.M. On several occasions almost closed eyes; remained quiet; appeared to be nearly asleep. Movements crawling.

1.30 P.M. Has become brisker; still unable to move freely by hopping. When sitting head leans to one side and legs are spread out.

2 P.M. Lethargic, stupid, not so paretic, but less inclined for voluntary movements.

No urine or feces were passed. The rabbit lost all its previous plump, puffed-out look, its hair flattening down and becoming awry.

As far as these observations go little more can be advanced than that *Stipa viridula* contains some body or bodies which it is difficult to isolate, but which cause marked symptoms in frogs and rabbits as well as in the horses and cattle observed in its habitat. From the descriptions given based upon frequent personal observation, the grass appears to act not only as a powerful nervous narcotic, but as a diuretic, a sudorific, and as an irritant both of the respiratory and cardiac organs.

In the frog and rabbit a narcotic and paralytic power is well shown, but in the frog the respiratory movements appear to be slower, the heart acting in a manner somewhat recall-

ing digitalis; while in the rabbit the pupils are contracted, the respirations and heart-beat are quickened, while the behavior of the animal strongly suggests the idea that it suffers from hallucinations. The movements of fright shown by the rabbit, evidently arising from imaginary objects apparent in front of it, were most marked, and culminated in its retrogression backwards for some feet, a movement unsuited to the rabbit's conformation, and most unusual in the species, while alarm was indicated by the position of the ears and the constant shrinking back of the head.

Though *Stipa inebrians* and *Stipa viridula* may be different plants, the effects on the rabbit undoubtedly suggest that *Stipa viridula* was the cause of this cuniculus inebrians.

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A PRELIMINARY NOTE ON THE PHARMACOLOGY OF THE ALKALOIDS DERIVED FROM THE MESCAL PLANT.

Our readers may recall papers by Dr. Weir Mitchell and Dr. Prentiss on this subject. In the *British Medical Journal* of October 8, 1898, Dixon tells us that the plant *Anhalonium Lewinii* belongs to the small group of the Melocactæ, and is native to Mexico. It is used by the Kiowa and other Mexican Indians during certain religious ceremonies; they eat the so-called dried fruits, or, as they are termed by the natives, "mescal buttons." Lewin, Prentiss and Morgan, Weir Mitchell and other Americans, have made some few experiments by eating the buttons, but no account has at present been given of the pharmacology of the derived alkaloids. Heffter has described a method by means of which four alkaloids were prepared.

Mr. Edmund White, B.Sc., pharmacist at St. Thomas's Hospital, by a method modified from Heffter's, prepared for Dixon four crystalline alkaloids from the "mescal buttons;" the alkaloids and percentages obtained were as follows:

|                 |   |                |
|-----------------|---|----------------|
| 1. Mescaline    | } | 1.16 per cent. |
| 2. Anhalonidine |   |                |
| 3. Anhalonnine  |   | 6.46 per cent. |
| 4. Lophophorine |   | 0.13 per cent. |

All are freely soluble in water, and possess a remarkable similarity in their physiological actions. It is not proposed here to give detailed differences between these substances, but only to indicate the general conclusions obtained. The following data apply to all:

*Skin*.—Absolutely non-irritant, hence injec-

tion is a suitable mode of administering the alkaloid. A five-per-cent. solution has no effect when applied directly to the conjunctiva.

*Mouth.*—The substance behaves as a specific sialagogue.

*Gastro intestinal.*—After large doses nausea and vomiting may occur. Small doses are apt to cause constipation, but when the dose is large diarrhea sometimes occurs, and in exceptional cases even bloody stools have been observed.

These results are produced whether the alkaloid is given by injection or by the mouth.

*Blood.*—No effect.

*Circulation.*—From the therapeutic point of view this is the most important action, although any action on the circulatory system by this plant has been denied by some observers. Small doses slow the heart and cause it to beat much more vigorously, whilst after a varying period, dependent on the dose, the beat recovers its normal rate and generally exceeds it, but is never very rapid.

There is also a considerable rise in arterial pressure. These results are probably due (*a*) to direct stimulation of the intracardiac ganglia and nerve terminals of the vagus, and (*b*) to stimulation of the vasomotor center.

In toxic doses paralysis of the nerve endings of the vagus and subsequently of the nerve cells occurs. In a cat, after section of both vagi, the heart-beat was slow and arterial pressure increased by an injection of 0.025 gramme of the alkaloid, when a strong stimulation of the vagus failed to produce inhibition.

*Respiration.*—In moderate doses no effect. Toxic doses give rise to rapid shallow respiration, and death subsequently occurs from failure of the respiratory center. This is the main danger to be apprehended when experimenting with the drug in the human subject.

*Nervous.*—There is a preliminary stage of excitement, talkativeness, and exuberance of spirits, followed by a stage of intoxication. Like Indian hemp its effects vary considerably in different individuals. During the stage of intoxication there are increased reflexes, wide dilatation of pupils, auditory and nasal hyperesthesia, incoordination, tremors, blunting of cutaneous sensation, a rapid flow of ideas with difficulty in concentrating the attention, and sensory hallucinations, especially visual.

These latter consist of a kaleidoscopic play

of colors ever in motion and the tints constantly changing. The movements may be linear, rotatory, or pulsating. The visions generally are only seen with closed eyes. Coloring of external objects is exaggerated. Intellection and introspection seem to the experimenter to be normal. Occasionally there is an indescribable sensation of dual existence.

Lethal doses produce complete paralysis, and death is due to respiratory failure. Post mortem, a faradic current applied to the motor nerves produces contraction.

The important effects of these alkaloids in therapeutic doses would appear to be:

1. A direct stimulation of the intracardiac ganglia.
2. An initial slowing of the heart.
3. An elevation of arterial tension.
4. A direct stimulation of the brain and motor centers of the cord, as shown by the increase in reflex excitability.

#### TREATMENT OF POISONING BY MUSH-ROOMS.

In a recent issue of the *Philadelphia Medical Journal* PRENTISS thinks that a consideration of the symptoms and of the known physiologic action of muscarine (the mushroom poison) indicates the measures of treatment which are most efficacious.

Clear out of the stomach and bowels any of the fungi that may remain. As emetics, the non-depressing emetics, sulphate of zinc and sulphate of copper, are preferable. They are prompt and thorough in their action. But it may occur that emetics given by the stomach fail to act, on account of a benumbed condition of the nerves. Then apomorphine, four milligrammes hypodermically, and repeated, if necessary, should be tried. If these be not at hand use mustard, a table-spoonful in half a tumblerful of water, repeated if necessary. Sulphate of zinc 1 gramme (15 grains) every fifteen minutes until vomiting occurs. Sulphate of copper 0.30 gramme (5 grains), every fifteen minutes until vomiting, may serve. The importance of not leaving any of the mushrooms in the stomach or intestines appears from the fact that in autopsies in cases of mushroom poisoning portions of the fungi are found in the alimentary canal.

In consequence of this, there is progressive absorption of the poison going on from the inception until this débris is got rid of. No doubt many of the fatal cases so result from

this cause. Muscarine is rapidly eliminated by the kidneys, and if we can rely upon the reports concerning urine-drinking by the Kamchatkan debauchees it must be very completely eliminated.

If these agents fail, wash out the stomach with the stomach-pump. To act on the bowels, castor oil is preferable, to which, in cases of torpidity, croton oil may be added. Purgatives producing watery exudation into the intestines, such as the salines, should not be given, because water dissolves the muscarine and might thus promote its absorption.

Atropine is the physiologic antidote to muscarine. It should be given without delay hypodermically, in doses of from one-half to one milligramme ( $\frac{1}{16}$  to  $\frac{1}{8}$  grain), until it shows its characteristic action on the system, and then the effect kept up as the severity of the case may demand. Dilatation of the pupils, seen in some cases, is probably due to atropine.

Sustain the action of the heart. From heart failure comes the principal danger. First of all in importance is absolute rest in the recumbent posture; then, as in case of aconite poisoning, give the tincture of digitalis, ten drops every two or three hours, according to the effect. If there should be blanched skin, pale face, and cold extremities, give nitroglycerin, one milligramme ( $\frac{1}{80}$  grain) hypodermically, as frequently as required, instead of the digitalis. If the heart still continues weak and the vital powers are sinking, galvanism to the cardiac region and inhalations of oxygen may be employed. Efforts to keep the patient alive should be unremitting, for we know that if the crisis can be tided over, Nature will eliminate the poison and recovery be assured. If death does not occur by the end of the third day, recovery is probable. Other unfavorable symptoms are to be appropriately met as they occur. For nourishment, concentrated foods are preferable, such as the meat extracts, egg albumen, milk, and the like. Nourishment is best given in small quantity at frequent intervals.

There is no chemical antidote to muscarine known. Tannic acid, the chemical antidote to alkaloids generally, does not precipitate it. Acidulated water (vinegar and water) used before cooking, to remove the poison from these mushrooms, would be worse than useless as an antidote. It dissolves the poison and would promote its more rapid absorption.

#### *DIRECT AND INDIRECT DAMAGE TO THE GENITAL TRACT.*

At the February meeting of the St. Petersburg Obstetrical Society, Dr. Barsoukoff read notes of a case of sloughing of the vagina. The patient had been admitted for poisoning by sulphuric acid. Eight days later the first reported sign of pelvic trouble set in, the surgeon noting slight vaginal hemorrhage, and four days afterwards he withdrew from the vaginal canal a cylindrical sloughy membrane. It included the whole mucosa and much of the submucous tissue of the entire upper third of the vagina. There was no rise of temperature through the whole course of the case. Very naturally it might be concluded that sulphuric acid had not only been taken by the mouth but likewise injected into the vagina. There was no reason, however, for such a supposition in this case. Clinical evidence was entirely against it, as there was no trouble in the pelvic region till over a week after the poisoning. On the other hand, it is quite reasonable to assume that the sloughing of the vagina was due to the sulphuric acid poisoning. One effect of the acid when taken by the mouth is acute irritation of the alimentary canal. Now, as Harley, Hutchinson, and others showed many years ago, enteritis may be followed by discharge of the vaginal mucous membrane.

Dr. Rhys Griffiths, of Cardiff, contributed to our columns a valuable paper on this subject. His own case deserves study, as, unlike that above related, which was extremely acute, the affection lasted for years, shreds of vaginal tissue coming away from the vagina from three to four inches long and from one to two inches wide. The abdomen was often swollen, and there was intestinal irritation. What was much more comprehensible, as the latter complication was evident, was the passage of shreds from the rectum. The primary disease was in fact mucous colitis or membranous enteritis, more frequent in women than in men. Barsoukoff related three more cases in his own experience, all in typhoid fever patients and all at the beginning of the fourth week. In all the vaginal mucous membrane came away more or less complete as a slough, just as in his first case, which was clinically even more acute. At the annual meeting of the Obstetrical Society of London in February, 1896, Dr. Playfair exhibited a slough forming a complete cast of the vagina from a case of typhoid. In chronic cases like that of Dr. Rhys Griffiths the vaginal mucosa comes

away in shreds. In short, for reasons on which pathologists are not agreed, enteritis may cause membranous vaginitis, whilst if the primary intestinal lesion be acute the vaginal mucosa may come away as an actual slough.

This remarkable symptom, then, must not be taken as proof of local violence or of the felonious administration of local applications. On the other hand, improper local applications may cause complete mucous casts of the vagina to come away quite painlessly. Mr. Targett exhibited a very perfect cast at the July meeting of the Obstetrical Society in 1895. The patient was a very neurotic single woman, aged thirty-five. She had been told by an eminent authority that she had nothing the matter with her. Acting afterwards on the advice of a friend she began a course of local treatment by a quack remedy. A medicament in the form of a cylinder was slipped into the vagina, and after an interval of from three to five days the cast was shed after vaginal injection. Another cylinder was then introduced and the process repeated. Within ten months no fewer than fifty casts were expelled, and the patient seemed none the worse. As in Barsoukoff's typhoid cases, stricture of the vagina does not seem to follow these exfoliations.

The medical jurist may learn from these cases that the vaginal mucous membrane is very prone to come away in certain circumstances. The phenomenon is not, however, produced by ordinary local violence, but from different causes, one being quite the opposite to local.—*British Medical Journal*, July 16, 1898.

#### TREATMENT OF PULMONARY TUBERCULOSIS.

To a recent number of *La Médecine Moderne* MIGNON contributes his views. He says that he finds that almost all of the evil symptoms of pulmonary tuberculosis can be largely modified by immobilization of the thorax, in much the same way as one would treat a case of early pleurisy. Thus he finds that thoracic pain and neuralgic attacks, the cough, the vomiting, the tendency to hemoptysis and even the expectoration are decreased by this means, and more surprising than all, that the temperature is somewhat controlled. We should think that this treatment would possess advantage in direct proportion to the painfulness of the case, and

that where the lung was already much involved, so that it was difficult for the patient to breathe, the fixation of the chest would be practically unbearable to the patient.

#### THE USE OF SUPRARENAL GLAND IN THE TREATMENT OF CHLOROFORM ACCIDENTS.

In the *Revue de Thérapeutique Médico-Chirurgicale* we are told that MINKOWSKY has repeated the experiments of Biede and of Gottlieb and has found that the use of suprarenal gland in the lower animals does much towards preventing accidents during the administration of chloroform, probably through its powerful influence on the vascular system.

#### THE TREATMENT OF CHRONIC COLITIS IN CHILDREN.

*La Presse Médicale* in a recent issue contains a paper by ROMME upon this topic. After pointing out that the therapeutic indication in most of these cases is multiple, he also points out that hydrotherapy in the form of frequent and prolonged baths, sometimes hot and sometimes cold, according to the reaction of the child, is useful; that it is absolutely essential to regulate the diet; and that in many cases the administration of broths, vegetable or animal, is extremely useful in place of milk. Where it is evident that there is deficient gastric digestion care must be taken that all meats are carefully pulped or minutely subdivided before they are swallowed. Well-toasted bread should be used, and the following formula may be prescribed:

- R Hydrochloric acid, 5 drops;
- Distilled water, 3 ounces;
- Gum arabic syrup, 6 drachms;
- Tincture of opium, 2 drops.

One to two teaspoonfuls twice a day.

Should there be evidently much inflammation of the large intestine, hot baths every two or three days, with hot compresses applied night and morning over the abdomen, are very useful; and lavage of the intestine with hot water which has been boiled, and to which has been added borax in the proportion of 2:1000, or the decoction of chamomile, exercises a useful influence upon the mucous membrane. The compresses and the baths relieve pain. Sometimes minute flying blisters applied to the abdomen are of value. Where it is evident that putrefaction is going on in the intestine and the colitis is chronic



so that the stools are very evil in odor, it is well first to give minute doses of calomel in the following prescription until the mucus is thoroughly removed from the bowel:

- ℞ Benzo-naphthol,  
Beta-naphthol, of each 2 grains;  
Salicylate of bismuth, 1 grain;  
Powdered sugar, or powdered gum arabic, 5 grains.

Make into one powder and give three of these powders a day to a child of four years.

This treatment should be continued for four or five days. Should the pain be very severe minute doses of opium may be given. Antipyrin is not satisfactory, as it does not thoroughly relieve the pain and is apt to diminish the secretion of urine, but should the fever be marked and it be impossible to reduce it by cold, then antipyrin may be used. Should evidences of collapse come on in the treatment of enterocolitis of children, copious intestinal irrigation with normal salt solution is to be resorted to to wash out the putrid material and to supply the body with liquid. In some instances the large bowel will be soothed by the injection of considerable quantities of olive oil, the soft-rubber tube being pushed high in the bowel and three or four ounces of oil given.

#### FORMULA FOR THE TREATMENT OF GOUT.

The following formula is stated by the *Klinische Therapeutische Wochenschrift* to be useful in the treatment of gout:

- ℞ Sulphate of quinine, 1 drachm;  
Citric acid, 2 drachms;  
Simple syrup and syrup of orange flowers, of each 2 drachms;  
Distilled water, 6 drachms.

Ten drops of this mixture in an ounce of water, to which is added twenty grains of bicarbonate of sodium, will it is stated make a pleasant effervescent quinine draught. — *La Médecine Moderne*, July 13, 1898.

#### THE TREATMENT OF POST-PARTUM ECLAMPSIA.

The *Journal de Médecine de Paris* of September 25, 1898, outlines the following treatment: In many cases bleeding is the best remedy to which we can resort. As much as ten to sixteen ounces is to be removed. If insomnia and nervous irritation persist a full dose of chloral may be given by rectal injection, as for example as much as one drachm in three ounces of milk, and if quiet is not obtained by this injection it may be repeated

three times until as much as two to three drachms of chloral has been given in twenty-four hours. With other persons purgative treatment designed to eliminate the poison is resorted to, or in other instances diuretics are employed. The best diuretic under these circumstances is to inject beneath the skin artificial salt solution in the dose of about one pint per day. This is particularly useful with the bleeding. Still another method is to employ large and complete irrigation of the large intestine, two to three quarts of boiled water as hot as can be readily borne being passed into the bowel and kept circulating for a period of thirty to forty minutes, and being repeated two or three times in a period of twenty-four hours.

#### THE USE OF THE SULPHATE OF SODIUM IN CATARRH OF THE STOMACH.

SIMON, of Vienna, uses small doses of sulphate of sodium for the treatment of this condition. He usually gives from ten to fifteen grains of it in about six ounces of hot water, and under these circumstances the catarrhal condition of the stomach, with its hyperacidity, passes away and the sensations of pain and discomfort in the epigastrium with nausea are relieved. This method of treatment is supposed to do good by improving the motor power of the stomach. — *La Médecine Moderne*.

#### THE INFLUENCE OF MORPHINE AND ETHER UPON THE CONTRACTIONS OF THE UTERUS AND ABDOMINAL PRESSURE.

HENSSEN has studied the action of morphine and ether in twelve parturient females, the greater number of whom were primiparæ. The morphine was administered subcutaneously in the dose of  $\frac{1}{16}$  to  $\frac{1}{4}$  of a grain, and the ether was given by inhalation up to the point of producing profound sleep. His conclusions are that morphine given in the dose we have named does not exercise any material influence upon the action of the uterus nor upon abdominal pressure; that inhalations of ether for the first one or two minutes cause a notable diminution in the energy of the uterine contractions and in their frequency. The action of the uterus returns to normal five to twenty minutes after the cessation of the inhalations, and finally the abdominal pressure is completely removed during the time that the ether sleep is in existence. — *La Presse Médicale*, September, 1898.

*THE TREATMENT OF DIABETIC COMA  
BY THE BICARBONATE OF  
SODIUM.*

The *Revue de Thérapeutique Médico-Chirurgicale* of September 1, 1898, tells us that BÉSSON has recorded a case in which diabetic coma was markedly influenced for the better by hypodermoclysis, using six drachms of bicarbonate of sodium and two drachms of chloride of sodium in each liter of water. He concludes that this method of treatment offers us incontestable good results in the treatment of diabetic coma. Sometimes intravenous injections may be advisable. It is well in some cases to interfere before the coma develops.

*THE TREATMENT OF DIPHTHERITIC  
PARALYSIS.*

Plicque writes on this topic in *La Presse Médicale* of August 25, 1898, and while it is to be remembered that the prognosis in many cases of diphtheritic paralysis is favorable, what he has to say in regard to its treatment is interesting. After calling attention to the absolute dietetic needs of the patient and the fact that though food is always required it is sometimes difficult for the patient to swallow it, he recommends that it should be given in small quantities frequently and in such a form as to be readily digested and assimilated, and that in pressing cases gavage shall be resorted to where swallowing is so difficult that insufficient quantities of food can be taken. Where vomiting is present after each meal, then small quantities of champagne or shaved ice must be used. Sometimes the disorder of the stomach depends upon partial paralysis of the bowel, with consequent constipation. In other instances where the stomach is alone at fault, alimentation by the rectum, the subcutaneous injection of artificial serum and similar supportant measures must be employed. Sometimes, too, the application of the positive pole of the battery to the nape of the neck, the negative small pole being placed over the stomach, and eight to ten milliamperes of electricity used, will be of value in stopping the vomiting.

Among the nervous tonics which the author thinks are inoffensive he mentions kola, cocoa, the glycerophosphates, phosphide of arsenic, and strychnine. Phosphide of arsenic he thinks is useful in gastro-intestinal cases, and the strychnine particularly useful in those cases where there is muscular failure. Under these circumstances it may be

given hypodermically directly into the part which is affected.

In the way of local stimulant applications the writer advises salt baths, stimulating irrigations, massage, and similar measures. Sometimes electricity may be used with advantage. Where there is paralysis of the palate he applies the small pole of the battery to the neighborhood of the stylo-mastoid muscle, with the other pole in the posterior portion of the mouth or under the angle of the jaw, a feeble current being used and the séance lasting about ten minutes. The applications of this character which are made inside the mouth are exceedingly disagreeable to the patient and ought not to be attempted except in obstinate cases. The positive pole is placed upon the nape of the neck in other instances, and the negative pole armed with a small piece of moist cotton is applied to the neighborhood of the palate. Three milliamperes is quite sufficient. In paralysis of other muscles a pole may be applied to the nape of the neck, and the negative pole made in the form of a roller is then passed over the muscles which are paralyzed, the séance lasting about ten minutes. Plicque even asserts that application of electricity may prove useful in feeble vision.

*THE TREATMENT OF SORE MOUTH IN  
PREGNANT WOMEN.*

For the prevention of this complication of pregnancy *La Presse Médicale* of September 21, 1898, recommends the habitual use for four months prior to parturition of a mouth-wash designed to prevent acid formations in the mouth. The patient should visit a dentist in order to have the teeth thoroughly cleansed and carious places attended to. In many instances it is necessary to restore or maintain the normal alkalinity of the buccal secretion by alkalies such as the bicarbonate of sodium. The following may be used as a mouth-wash or dentifrice:

- ℞ Bicarbonate of sodium,  
Carbonate of lime, of each 10 drachms;  
Refined camphor, 2 drachms.

Or,

- ℞ Carbonate of lime, 10 drachms;  
Salol, 2 drachms.

In rebellious cases where there is much swelling of the gums and mouth a wash of chlorate of potassium may be necessary, or it may even be necessary to touch the ulcerated spots with permanganate of potassium. The following formula may prove useful:

- ℞ Chlorate of potassium, 1 drachm;  
Rose honey, 2 drachms;  
Glycerin, 6 drachms.

In very obstinate forms the spots may be touched with the following mixture:

- ℞ Tincture of iodine, 2 drachms;  
Glycerin, 6 drachms.

When permanganate of potassium is used, we employ permanganate of potassium 3 grains, distilled water 1 ounce.

#### THE ANTITOXIN PATENT.

We would not be behind our contemporaries in condemning the recent action of Professor Behring in applying for a United States patent for diphtheria antitoxin. If there is an axiom of medical ethics more binding than others, it is that no device which promises important aid to the health and well-being of the State should yield profit solely to its discoverer. Free trade in valuable discoveries has hitherto been maintained by the profession as trustees of the public health; now we have to face the misfortune that a man of eminent skill has not only claimed, but has succeeded in obtaining, a patent for that which is not solely his own. To all such attainments as that of the diphtheritic antitoxin the work of many men contributes; and in morals there can be found no sanction for this deplorable procedure.—*Quarterly Medical Journal*, October, 1898.

#### THE TREATMENT OF PRURITUS.

The *Revue de Thérapeutique Médico-Chirurgicale* of September 15, 1898, contains an article by LAVALLEE upon this topic. After discussing the various causes of pruritus he speaks of the internal treatment and suggests the use of antinervines, such as valerian, the bromides, and asafetida, the tincture of belladonna and the tincture of aconite, and sometimes the use of the tincture of gelsemium. Of the other remedies which have been administered internally in pruritus he mentions hamamelis, digitalis, ergotin, and even quinine and pilocarpine. Opium and chloral are not to be forgotten in severe cases. The external treatment consists in the use of baths at home or at natural springs, particularly the use of those waters which are mildly alkaline, and the application of cold douches or very hot douches prolonged through a sufficient period and making distinct influence upon the peripheral nervous system. In other instances a wash of dilute alcohol

or vinegar or the application of hot compresses to the itching part will be of value, the hot compress being covered with rubber dam to maintain heat and moisture. In senile pruritus the following prescription may be used:

- ℞ Bromide of potassium, 2 drachms;  
Iodide of sodium, 1 drachm;  
Salicylate of sodium, 2 drachms;  
Acetate of sodium, 1 drachm;  
Infusion of gentian, 4 ounces.

Two teaspoonfuls in water after each meal.

At night hot lotions may be applied to the body in the form of a 1:2000 solution of corrosive sublimate, carbolic acid in the strength of 1:20, or the salicylate of bismuth with ten to twenty per cent. of powdered starch; or the following ointments may be advised:

- ℞ Menthol, 5 grains;  
Guaiacol, 1½ drachms;  
Salicylic acid, 30 grains;  
Lanolin, 1 ounce.

Or,

- ℞ Carbolic acid, 1 drachm;  
Hyposulphite of sodium, 1 ounce;  
Glycerin, ¼ ounce;  
Distilled water, 10 ounces.

Or,

- ℞ Vinegar water, 1 drachm;  
Ichthyol, 1 drachm;  
Glycerin (with or without menthol), 1 drachm.

In some cases a two-per-cent. solution of permanganate of potassium is useful, followed by an application of oxide of zinc. Where the pruritus is limited to a small area we may use menthol 30 grains, alcohol 6 drachms, and ether 6 drachms, or menthol may be used in chloroform to the point of saturation. In other cases we may give:

- ℞ Cherry-laurel water, 2 ounces;  
Chamomile water, 1 ounce;  
Alcohol, 1 ounce;  
Chloroform, 5 drops;  
Corrosive sublimate, 3 to 4 grains.

Or,

- ℞ Cocaine hydrochlorate, 45 grains;  
Chloral, 1 drachm;  
Cherry-laurel water, 2 drachms;  
Distilled water, 1 pint.

For pruritus of the anus laxatives may be used or rectal injections of very hot or very cold water may be employed, and just before retiring a one-per-cent. chrysarobin suppository may be introduced into the bowel. In other cases relief is obtained by making a local application of nitrate of silver, in the strength of 1 to 20, every three days.

For the treatment of pruritus of the scrotum a very hot solution of corrosive subli-

mate, or carbolic acid, may be applied on a compress and this enveloped in rubber dam. For pruritus of the vulva the following may be used:

- ℞ Hydrate of chloral, 1 drachm;  
Rose water, 3 ounces;  
Distilled water, 4 ounces.

Or,

- ℞ Morphine hydrochlorate, 6 grains;  
Cherry-laurel water, 1 drachm;  
Borate of sodium, 2 drachms;  
Chloroform water, 1 pint.

Or the following ointment may be used:

- ℞ Bromide of potassium, 30 grains;  
Salicylic acid, 7 grains;  
Calomel, 7 grains;  
Glycerole starch, 6 drachms.

Before retiring for the night it is well to apply and maintain in contact with the vulva hot poultices of linseed which has been moistened with boric acid water. In other cases a strong solution of nitrate of silver is to be applied:

- ℞ Nitrate of silver, 15 grains;  
Distilled water, 2 drachms.

Internally in pruritus vulvæ, if it be associated with a neurosis, sleep is to be obtained by a mixture of bromide of ammonium, chloral, and syrup of orange flowers, or by the use of sulphonal and antipyrin. Injections of lysol and corrosive sublimate are also of value to prevent vaginal discharges from irritating the vulva. Pruritus of the palm of the hand is to be relieved by remedies similar to that applied to the scrotum.

#### DIABETIC COMA AND ITS TREATMENT.

The *Bulletin Général de Thérapeutique* of September 15, 1898, contains an exhaustive article on this subject by ROBIN. After discussing the various forms of diabetic coma he indorses the recommendation of Lepine that the following intravenous injection should be used in these cases, namely:

- ℞ Chloride of sodium, 1 drachm;  
Bicarbonate of sodium, 2¼ drachms;  
Distilled water, 1 quart.

In addition we should institute at once in place of the antidiabetic diet a strict milk diet, and we should aid the elimination of poisons by the intestine by the administration of saline purgatives, of which probably sulphate of sodium is most efficacious. We may also give full doses by the mouth, amounting to six drachms of the bicarbonate of sodium, to saturate the acids of the body; and should the heart be feeble or

irregular we should administer full doses of digitalis and ergotin. The main indications for treatment under these circumstances are to maintain the action of the nervous system, to aid in the elimination of poisons by the kidneys, intestines, lungs, and skin, to render alkaline the liquids of the body and destroy toxins, to maintain the force of the heart, and to relieve gastro-intestinal fermentation.

#### SUBCUTANEOUS INJECTIONS OF MEDICATED OILS.

In *La Presse Médicale* of September 7, 1898, LETULLE states that he has obtained excellent results in certain cases of visceral tuberculosis by the injection of large quantities of olive oil into the subcutaneous tissue. He regards as absolutely essential to the success of this treatment that it shall be done sufficiently slowly and that absolute asepsis shall be maintained. Guaiacolated olive oil of the strength of one grain of guaiacol to 1000 cubic centimeters of oil is used, after having been sterilized by heat, and is then placed in a wash-bottle which has been sterilized. This wash-bottle is arranged exactly in the same manner as an ordinary atomizer, with a hand-ball air pump attached to the tube running into the surface of the fluid, and a trocar attached to a rubber tube leading off from the inside tube which is sunk deeply into the oil. By this means the oil is forced out into the subcutaneous tissues, and to prevent the air from carrying micro organisms into the oil it is filtered in its course through the tube by passing through some sterilized cotton, which is placed in the dilated portion of the canal. Under these circumstances quantities as large as from two to four ounces of guaiacolated oil may be given beneath the skin and repeated every two days. By using the injection very slowly pain is avoided, and the oil, he states, is readily absorbed.

#### MOVABLE KIDNEY AND ITS TREATMENT.

In an interesting paper on this subject in the *Medical Record*, EINHORN asks the question: Shall the treatment of movable kidney be surgical, or are medical therapeutic measures sufficient? The statements made in the literature regarding this point are widely divergent. On the surgical side, this operation is regarded by some as the only curative measure. Thus, for instance, Edebohls says

that the symptoms of movable kidney may be improved by the dorsal posture, the Weir Mitchell treatment, massage, electricity, and abdominal bandages; all these measures, however, fail in the vast majority of cases, and even the improvement obtained is usually only of transient character. A nephrorrhaphy properly performed in appropriate cases, as demonstrated by his own experience, always brings about improvement and presents a good prospect of a permanent cure. Lewis, who has recently written on this subject, also contends vigorously in favor of operative treatment. On the other hand, Landau is opposed to all surgical intervention, and Huber remarks as follows: "In reference to the therapeutics of enteroptosis, I would emphasize that, up to the present time, I have never been induced, owing to the severity of the symptoms or inefficacy of the adopted non-operative treatment, to refer the patients to the surgeon for the performance of nephrorrhaphy, the most radical treatment which at present still appears admissible. This much can be said, at any rate: that an intelligent application of bandages, in connection with an appropriate dietary and medicinal treatment of the gastric symptoms, will, as a rule, be adequate." Boas also does not appear to be a vigorous supporter of surgical procedures.

The author's own experiences point decidedly in favor of medical treatment, and for the following reasons:

The results of internal dietetic-mechanical treatment are very favorable, if the gastric and intestinal symptoms are treated according to modern methods, if attention is paid to promoting nutrition, and, if necessary, the wearing of an appropriate abdominal bandage is recommended. On reviewing once more the cases of digestive disturbances in connection with floating kidney treated with electricity (electrization was employed on account of the severe gastric symptoms, and not on account of the condition of the kidney), the writer finds that among the above mentioned forty-three patients, twenty-seven were completely cured—that is, all the subjective symptoms disappeared—and sixteen were considerably improved. The results were equally favorable in many cases in which electricity was not applied. He refers only to the above cases, however, because he possesses accurate data regarding them, and had them for a great length of time under observation.

As is generally known, very many cases of

movable kidney are unaccompanied by symptoms. We find a large percentage of digestive disturbances in patients affected with floating kidney, because these ailments afford us the opportunity of examining the patient. If we were to examine all healthy persons; it would soon come to pass that digestive disturbance in subjects of floating kidney perhaps do not occur much more frequently than in those whose kidneys are in a normal position.

These digestive disturbances in the vast majority of cases, therefore, do not depend upon the movable kidney, but upon other general causes; hence an operation upon the kidney would not in the least remove the trouble. Moreover, movable kidney, as already mentioned above, is only one of the manifestations of a general enteroptosis, and suture of the kidney would not remove the ptosis of the other organs.

The results of nephrorrhaphy are in no respect better than those of rational medical treatment. As stated above, according to the statistics of Sulzer, the results were unsatisfactory in about one-third of the cases subjected to operative measures; aside from this, there are the risks of the operation, which still has a mortality of two per cent.

In the last few years the writer has personally had an opportunity of observing three cases in which nephrorrhaphy had been performed by well known New York surgeons, and in which no improvement whatever occurred after the operation. One of the patients, indeed, both of whose kidneys had been sutured, asserted that her ailment had become considerably worse since the operation.

That some surgeons are too quick to undertake the operation is shown by the following case, observed by the writer:

Miss L. N., twenty-four years old, came under observation May 12, 1898. For three years she had suffered from pains in the region of the stomach, which were especially intense about one hour after eating. The appetite was good, but, owing to dread of pain, the patient eats at present but little, and only the lightest food. Bowels are regular and urine is normal. The patient reported that about six weeks ago she had consulted a distinguished surgeon of New York on account of her ailment. This gentleman found a floating kidney on the right side, and explained to her that an operation was necessary. A nephrorrhaphy was then performed, but when, after three weeks' stay

in bed, the patient got up, her old disturbances returned with the same severity as formerly. Examination of the thoracic organs showed nothing abnormal. On examination of the abdomen, however, it was found that the greater curvature of the stomach was situated one or two fingers' breadth beneath the umbilicus. At no place was there any particular tenderness to pressure present. In the right posterior upper lumbar region a scar left after the nephrorrhaphy was observed. On May 14, 1898, an examination of the stomach contents one hour after the test breakfast showed: HCl +; acidity = 78; free HCl = 48. On May 16 the stomach was examined in the fasting state, and was found empty. A diagnosis of hyperchlorhydria was made, and the patient was directed to take frequent meals and alkalis. Since then she has felt better, although her pains have not been entirely removed.

While in general Einhorn is opposed to operative treatment in cases of floating kidney, he believes that in rare instances nephrorrhaphy may be justifiable, especially when a connection between the symptoms (both the direct as well as the gastro-intestinal disturbances) and a movable kidney appears to be proven in a high degree, and the above described dietetic-mechanical methods of treatment have completely failed. At any rate, every surgeon, before advising operative intervention in movable kidney, should completely exhaust the suggestions and remedies of the physician. By proceeding in this manner the vast majority of patients suffering from floating kidney will be relieved of their disturbances without any surgical intervention.

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*THE RESULTS OBTAINED BY THE OPERATION OF PARTIAL THYROIDECTOMY IN EIGHT CASES OF GRAVES' DISEASE.*

In a recent issue of the *Medical Record* BOOTH writes on this topic, and after detailing cases and discussing the subject in general he thinks that it will be seen that the operation cured five of the eight patients. One died; in one no change has occurred; one has been improved, and in this case it is worthy of notice that the operation was performed only six months ago, so that we may expect still further improvement and perhaps a cure; for the longer the period of observation after operation the better appear

the results. The order of improvement in his cases corresponds with that observed by others: first the goitre diminishes, next the nervous symptoms disappear, then the pulse-rate and vasomotor phenomena improve, and the exophthalmus last of all.

Surgical intervention in Graves' disease has been espoused in the works of Stierling, Heidenreich, Lemke, Kocher, Buschan, Solary, and others, all reporting successful results in a number of cases. Solary in sixty-nine observations reports eighty-four per cent. improved. Heidenreich in sixty-one cases had fifty cures and five failures. Buschan gives the following statistics: 80 cases—31 cured, 20 improved, 6 deaths, 16 failures, 7 unknown results. Mikulicz in eleven cases had seven patients fully cured, and four essentially improved. Besides these, numerous other authors report cases cured or improved by operative measures.

The following is a list of fatal cases after partial thyroidectomy from 1890 to May 1, 1898: 1892, Lemke, 1; 1893, Cohen, 1; 1893, Wolff, 1; 1896, Mattieson, 2; 1896, Riedel, 5; 1897, Embden, 1; 1897, Lejard, 1; 1897, Wiesinger, 1; making 13 in all for this period. The deaths take place suddenly, either at the time of the operation or soon afterward, and the rapid onset of the acute symptoms, with death following in a few hours, has given rise to much speculation as to their cause.

Cases of Graves' disease may be entirely cured by operative measures. Pathological and clinical evidence is in support of the view that the symptom-complex is the expression of a primary neurosis multiplied by a secondary glandular intoxication. While the ultimate cause of the disease of the gland is still a matter of speculation, and a mortality of seven per cent. after operation is reported, we cannot justly recommend it as a routine plan of treatment. Sudden death may occur in the course of or soon after operation, and has not as yet received a satisfactory explanation.

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*ACETATE OF THALLIUM FOR NIGHT SWEATS.*

COMBEMALE has recommended the acetate of thallium, which appears in a white powder readily deliquescent and soluble in water and in alcohol, in the dose of two to four grains a day in pill form for night sweats. He claims to have obtained excellent results. —*La Presse Médicale*, September, 1898.

*THE CHEMISTRY OF DIABETIC FOODS.*

It may be accepted as a truth, although some may dispute it and great commercial interests are opposed to it, that natural food simply cooked is the best for the sick as well as for the healthy, and that of the various artificial dietetic specialties, produced with so much ingenuity and supplied at so high a price, few are worth a tenth part of the money they cost.

In the treatment of diabetes the truth of this observation is being realized by many of those who have most experience in the matter, and attention is being directed at the present time rather to the inquiry how far natural articles of food may be permitted than as formerly to the invention of unpalatable, indigestible, and innutritious substitutes.

The modern physician is content to confine his absolute prohibition to cane and grape sugars, and articles of food which contain these substances, but he recognizes the desirability of permitting other carbohydrates, although only in quantities proportional to the assimilative powers of each patient. Chemical analysis has shown that many of the articles ordinarily excluded from a diabetic diet contain only small amounts of starch, or the less harmful forms of sugar, such as levulose; while it has also been demonstrated that most of the so-called diabetic foods contain a considerable, and some a very high, percentage of starch or sugar-forming carbohydrates.

For example, it is very usual to meet with patients who have been ordered to eat animal food, green vegetables, and gluten bread, no limit being attached to the last, although many kinds in the market contain quantities of starch varying in amount from thirty to forty per cent., and yet potatoes contain only fifteen per cent., and Jerusalem artichokes sixteen per cent. Fruit, which is so valuable an addition to a diabetic dietary, is usually totally excluded, although apples and sour oranges contain not more than about ten per cent. of carbohydrate, while rhubarb, green gooseberries, cranberries, bilberries, and currants range under four per cent. In a recent paper by Dr. F. Kraus, Jun., of Carlsbad, he has shown that cooking still further deprives many fruits and vegetables of their carbohydrate components. A raw apple containing 11.7 per cent. of carbohydrate after once stewing contained 7.3 per cent.; after twice, 6.1 per cent.; peaches contained 9.5 per cent. before cooking, and 1.8

per cent. after. He recommends that the water in which the fruit is stewed should be thrown away and a little flavoring added, such as cinnamon, cloves, or vanilla, as well as saccharine. In this way really palatable preserves are made in Germany for the use of diabetics, containing very little carbohydrate.

Vegetables may be made to take up a large amount of fat so as to form a very valuable addition to the diet, without becoming disagreeably greasy, as in salad (oil), or puree (butter), or by frying them in oil or fat. Dr. Kraus illustrates the futility of trusting to the general run of commercial articles sold as diabetic bread by a table showing the carbohydrate contents of most of those used in Germany. Of the nineteen specimens enumerated only five contain less than 30 per cent. of carbohydrate, four are between 30 and 40 per cent., four between 40 and 50 per cent., two between 50 and 60 per cent., and four over 60 per cent., as against ordinary white wheaten bread, which contains 60 per cent. He quotes a case mentioned by Professor von Noorden, which was sent to him as a severe case of diabetes, because on the strictest diet the sugar had gone up. This "strictest diet" consisted of meat soup, coffee, tea, eggs, meat, green vegetables, bacon, butter, and "conglutin bread," of which last 300 grammes was taken daily. This conglutin bread contained 38 per cent. of starch, and was equal to 200 grammes of white bread. On proper diet the sugar disappeared in two days, and the case proved to be really a mild one.

We could produce parallel examples of English diabetic bread and flour in every respect as bad as those made in Germany. It is not uncommon in England to meet with patients who are on what they believe to be strict diet; if they are asked whether they eat bread they promptly answer, "No, only toast," of which they take as much as they please. It is extraordinary that any virtue can be supposed to exist in toast, but it is a not uncommon delusion, as all consultants must be aware. Only a few weeks ago a letter was sent to the *British Medical Journal* by a correspondent who wished to impart his experience of what he called "strict diabetic diet" of this kind. Toast is useful for diabetics who can assimilate bread in any form, because it can be weighed accurately, and because it is less tempting to the appetite than fresh bread, but, unless it is burnt to carbon, it must contain as much carbohydrate.

Milk contains only four or five per cent. of milk sugar, and in limited quantities of half a pint to half a liter can generally be taken with safety; but a diabetic milk may be made by previously diluting the milk and then passing it through a separator so as to get nearly all the fat, and half or less than half of the other solids, in one portion. It can then be sterilized and sold in bottles. It would diminish the objection felt by many to this very valuable article of diet if such diabetic milk were prepared for sale in this country.

To sum up the lesson we desire to teach: (1) It is much better to allow a definite quantity—for example, two to four ounces of potato or toast—than to allow an unlimited amount of “diabetic bread” of unknown composition; (2) in many cases such definite quantities of natural foods are safer than even limited amounts of the less palatable and more expensive specially prepared articles; (3) when it is desired to place a patient upon strict diet, care should be exercised to see that he obtains his bread substitutes from a really trustworthy maker; (4) lastly, many fruits, especially if well cooked, may be added to the diabetic dietary. — *British Medical Journal*.

#### THE AMBULATORY TREATMENT OF FRACTURES.

During the past few years much has been written concerning the ambulatory treatment of fractures of the long bones. A great deal of interest has been manifested, both here and abroad, and a great deal of confusion—more than is warranted—seems to exist in the minds of some who have spoken and written upon the subject as to exactly what ambulatory treatment is. Many of those who have discussed the question appear to be under the impression that the ambulatory treatment of fractures consists in the application of a plaster-of-Paris splint, say to a fractured tibia, in the usual way, and the allowing of the patient to get about on crutches as well as he may be able to do. This method of treatment certainly cannot be designated as ambulatory, in the sense in which the term should be used. The patient is undoubtedly getting about, but it is largely his determination or his necessity and his success in learning to use crutches that enable him to do so. In these instances the discomfort of the patient is apt to be much increased by the swelling of his foot, which results in part from its dependent position

and in part also from the fact that the muscles are not acting, and accordingly are not assisting venous return.

Those writers and speakers who have the clearest conception of what ambulatory treatment really is have given us quite another picture. Still taking a fracture of the tibia with or without a fracture of the fibula as an example, we have described to us a radically different but superficially similar procedure. This true ambulatory treatment consists in applying the plaster of Paris to the limb so that it is suspended in a rigid case from the knee down, and is enveloped in soft material with a thick pad under the foot. The weight of the body in attempts at walking is carried by the splint, which must have a thickly padded collar of plaster of Paris at its upper end, just below the tuberosities of the tibia, upon which the weight of the body rests. The whole splint must be strong enough not to “buckle” under pressure, and still must not be so heavy as to prevent the patient getting about with ease. If we apply such an apparatus soon after the occurrence of the fracture, and allow the patient to attempt to walk, perhaps with the aid of one or two canes at first, we are really employing ambulatory treatment. The success of the method will of course depend to some extent upon the nature of the fracture, and we shall also find that patients will vary very much in their inclination to avail themselves of the possibilities of this method.

Fractures close to the knee-joint, especially if there is any comminution, would be better treated by some other method. Fractures of the femur may in some cases be treated by the ambulatory method, but the apparatus must necessarily be much more cumbersome, and the difficulty in maintaining sufficient extension may be considerable.

There is another side to the question in introducing a therapeutic measure which seems so different from accepted methods. Many surgeons would hesitate, and very justly, to attempt this form of treatment, because of its effect on the mind of the patient. The idea that a broken bone must be “set” and held firmly in position is so well fixed in the minds of the laity that, if we should neglect to go through some process which we must describe as “setting” with subsequent fixation, we may leave a germ in the patient's mind, the mature fruit of which will be a charge of incompetence and neglect, and a suit for malpractice in case the result should not be perfect, something which can



practically not be absolutely guaranteed. Wrapped up in this idea of "setting" is the idea that fracture of the leg must be treated by rest in bed, so that the bones may "knit."

It is for such reasons that our treatment of fractures, especially of the long bones, has been of the most conservative nature, and our hesitation has been so great to depart from the old lines. However, in selected cases this ambulatory method has given results good enough to encourage us to go on with it, and to attempt to define the limits within which it should be applied.—*Medical Record*, Aug. 13, 1898.

#### DIPHTHERIA AND ANTITOXIN.

In the *New York Medical Journal* of July 23, 1898, MORIARTY tells us that the dose of antitoxin is the most important factor we have to meet, after the decision as to its prompt and early use. Personally, the author uses a thousand units with an infant; with a child from two to five years of age he uses 2500 units, ranging from 1000 to 2500, according to the character and intensity of the case. If it were one of the severe laryngeal type in a child two years old he uses 2500 units; and in a child from seven to eight and upward he uses not less than 2500, and has in two instances used 3500. He is sure the best results follow a full initial dose. He has never used the enormous doses of 4000 or 6000 units as the initial dose, as is occasionally recommended. If such a quantity were required, he would use 3000, and in a few hours follow this with the full dose. He has often thought the second dose produced less disturbance than the first. In any of these cases, if there is not an improvement after ten hours, he uses a second dose; and if the case is a severe one, he makes the second dose the same as the first. In his own cases he has used strychnine, whiskey, tincture of muriate of iron, a highly nutritious diet, with peroxide of hydrogen for a gargle or spray full strength for the first twenty-four hours, or until the membrane has been acted on, when he diminishes the strength and lengthens the interval. He has seen such a goodly number of desperate cases benefited by the use of antitoxin even late in the disease (the fourth or fifth day) that he believes every patient with diphtheria, laryngeal or other, no matter how late or how severe, should have a full dose of antitoxin.

The author wishes to emphasize his judgment in the following conclusions:

- (a) Diphtheria antitoxin *per se* is harmless.
- (b) Diphtheria antitoxin is practically a specific in diphtheria.
- (c) Diphtheria antitoxin is the rational treatment for diphtheria.
- (d) Diphtheria antitoxin must be used early.
- (e) Diphtheria antitoxin must be used in full dose.
- (f) It is necessary to have a reliable product.
- (g) Intubation is an essential associate of antitoxin in laryngeal cases.
- (h) There is no case so far advanced that antitoxin should not be used.
- (i) We should not wait for the report of the bacteriologist, but use it promptly on clinical grounds.
- (j) It must not be the last resort, nor can it be of much service in small doses.

#### THE INDICATIONS FOR OPERATION IN RENAL TUBERCULOSIS.

PARK (*Journal of Cutaneous and Genito-Urinary Diseases*, August, 1898) states that when once the conclusion is reached that the kidney is the seat of a tuberculous lesion, the sooner that organ is removed the better, providing only and always that there be in the other kidney or elsewhere no lesion of a similar character which would serve as a contraindication.

It is possible only in exceptional instances to make the diagnosis so early that one can rely fully upon non-surgical measures, meaning thereby the use of drugs and perhaps tuberculin. It is also most exceptional to meet with a kidney where the lesion is so isolated that one can safely remove but a portion of the organ.

The question as to the general propriety of operation must be first passed upon; then the exact diagnosis should be made, if possible, as to whether one kidney is involved or both. If it can be clearly established that both organs are affected with this disease, the removal of one will be of little benefit, and often rather a detriment. We have then to determine whether there is any serious tubercular disease elsewhere; especially is this true of the lungs and other inaccessible regions of the body. It is not necessarily so true of lesions in parts which may be safely attacked, as, for instance, lymphatic nodes near the surface, the long bones, the joints, and the skin.

When it can be positively established that

there is also tubercular disease of the prostate, seminal vesicles, and perhaps of the testes, the operation is of doubtful propriety, though sometimes with regard to the latter we may apply the same rule as pertains to lesions of other inaccessible parts of the body. When the ovaries are diseased they may possibly be removed at the same time as the kidney; when other deep organs are involved the operation is most inexpedient. When the peritoneum is at fault we may bear in mind the advantage which accrues from opening this cavity, and perhaps may decide to remove the kidney by the peritoneal route.

Operations upon the kidney are of gravity just in proportion to the precariousness of the condition which necessitates them; they should always be so regarded and so represented. To remove the kidney ordinarily is easy and is not a tedious operation, but when it comes to the dissection and separation of the ureter, when its removal is indicated, the measure seriously prolongs the operation—sometimes so much so as to endanger life. What it is best to do, therefore, under these circumstances, should really be left to the decision of the surgeon at the time of the operation, rather than to be carried out upon any preconceived plan.

Partial nephrectomy is contraindicated in theory—although one must confess that it is sometimes apparently successful in practise—because the percentage of cases in which the kidney is the seat of a single or isolated lesion is exceedingly small as compared with that where the lesions are multiple and disseminated. There is certainly reason to think that after the early removal of a tuberculous kidney the progress of the infection to the rest of the genito-urinary tract must be at least delayed and is sometimes apparently checked. This is in accordance with the experience of a number of competent observers.

As regards the selection of the operation, the surgeon has the choice between the intraperitoneal and extraperitoneal routes. The intraperitoneal route will be selected principally only in the presence of certain specific indications; it will often be called for in the case of little children, this being the only method by which the enlarged kidney can be safely removed in such instances. Whether the operator shall go through the mesentery or the mesocolon is a matter of minor importance, and must be decided entirely according to the emplacement of the diseased organ.

Of the extraperitoneal methods, most operators now select the oblique in preference to the lumbar incision, and for reasons which are quite obvious. The beauty of the method with which König's name is now so commonly connected is the extent to which the incision can be carried; if the size of the mass requires it, it may be extended to the external border of the rectus muscle on the affected side. For ease and convenience in almost every respect it certainly takes precedence over every other method, save in the rare instances in which the kidney is easily shelled out after opening the abdomen. Cases occasionally occur in which it will be of advantage to perform the operation in two sittings.

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#### REMOVAL OF BILIARY CALCULI FROM THE COMMON DUCT BY THE DUODENAL ROUTE.

McBURNIE (*Annals of Surgery*, October, 1898) gives the history and treatment of a case suffering from biliary calculi. Eliza M., forty-four years of age, came under his care on the 12th of April, 1898. The diagnosis lay between calculus obstructing the main bile-duct and carcinoma, the existence of a calculus being favored, on account of the absence of cachexia and gastric symptoms.

Operation was done on the 15th of April, 1898. A vertical incision five inches long was made through the skin, beginning just below the ninth costo-chondral articulation on the right side, passing through the rectus muscle parallel to the course of its fibers, about two inches from the median line. The liver was at once noted to be much enlarged and congested. Firm adhesions existed between an atrophied gall-bladder and the duodenum. Palpation of the gall-bladder failed to detect the existence of calculus within; the cystic duct seemed to be in a normal condition. Examination of the common duct revealed no abnormality until its extreme lower end was palpated through the anterior wall of the duodenum. Here a firm, hard body, apparently about an inch in diameter, was readily felt. This body seemed to be located at a point corresponding to the lower end of the duct just before the latter opened into the duodenum. Adhesions were so strong, and the situation of the mass so low down and so far behind the duodenum, that its examination from the posterior aspect of the duodenum was hardly possible. It was evident that a biliary calculus formed the center of this mass.

The duodenum was incised vertically at the middle of its descending portion, the incision made being about one and a half inches long. The orifice of the common duct was found on the posterior wall of the descending portion of the duodenum, directly opposite the incision just referred to. A probe, introduced through this orifice, immediately came in contact with a calculus. Slight enlargement of the mouth of the duct with the scalpel permitted the end of the calculus to be seen. The finger being then passed behind the descending portion of the duodenum, the lower end of the common duct containing the calculus was easily pushed forward into the incision in the anterior wall of the gut, and a little additional pressure being made with the left hand, with the right the incised orifice of the duct was pushed back from the calculus, allowing the latter to at once escape into the intestine. A probe was then introduced, which passed freely up the common duct, but no other calculus was found. Bile flowed freely into the intestine as soon as the stone was removed. The wound in the duodenum was now closed by three rows of fine catgut sutures, the application of these sutures being very easy and complete. The surface of the intestine and the surrounding area of the abdominal cavity was then carefully washed with hot saline solution, and the wound in the abdominal wall was completely closed, in separate layers, with catgut sutures. The skin wound was closed with silk, a bit of thin rubber being introduced at the center to drain the subcutaneous cellular space.

The gall-stone removed was oval in shape, hard, dirty-brown in color, and measured three-quarters of an inch in one diameter and one-half inch in the other. No nausea followed the operation, and no pain. On the following day only sterile water was administered by the mouth, nutrient enemata being given per rectum every four hours. Two days after operation a large ordinary enema produced a natural movement of a light color. The wound healed in a perfectly aseptic manner, the discharges from the bowel rapidly recovered a normal appearance, and on the 1st of May the patient reported herself as feeling perfectly well. Five days after operation the temperature became normal, and has remained so ever since.

The operation just described was devised by the reporter some six years ago, while he was operating upon a patient who was in an extreme condition of debility, deeply bronzed

with bile pigment, and had suffered for many years from obstruction of the common duct. A year previous to his operation the diagnosis of carcinoma of the liver had been made by a prominent consultant of New York, and the advice was given that she be removed to her home, as she must inevitably die. At the end of the year, no especial change having occurred, her husband, who was a physician, brought her once more to New York, and it was then that the operation to which we have referred was done. On opening the abdomen the liver was found much enlarged and engorged, the gall-bladder atrophied, containing no calculi, moderate adhesions covering the cystic and common duct, which were, however, easily broken down, allowing of complete palpation of the entire bile track. With one finger behind the duodenum and another depressing its anterior surface a large, hard mass was readily discovered lying behind the center of the descending portion of the duodenum. This was clearly a calculus. McBurney at first made a somewhat prolonged effort to so raise the duodenum and bring the lower end of the common duct into view as to enable him to open the latter and extract the stone. He found that this was quite impossible, for he could neither bring the lower end of the common duct into view, nor could he expect to be able to suture it. It occurred to him that if he entered the duodenum through the anterior wall of its descending portion he should come at once to the point where the duct joined the intestine. He therefore made a vertical incision, about one and a half inches long, at the point referred to, and found the papilla which marked the entrance of the common duct directly opposite the incision. A probe was introduced without difficulty, which, after passing about half an inch upward through the duct, came in contact with a firmly impacted stone. The orifice of the duct was first slightly incised, then with the aid of forceps largely stretched, until it was possible without difficulty to dislodge the calculus and draw it down into the intestine. Large quantities of bile immediately flowed into the gut. The wound in the intestine was then sutured with three rows of silk. The parts that had been exposed were carefully cleansed and the abdominal wound sutured with catgut, leaving only a small orifice for drainage by means of a piece of iodoform gauze. The drainage material was removed at the end of two days, and although the superficial wound was somewhat slow in healing, the patient

made a complete recovery without fever or other abnormal sign of any kind. Her weight, which had been reduced to ninety pounds, within six months has returned to her normal standard of 180. Since that time the writer has frequently seen this patient, and she has remained in robust health up to the present date.

In all the author has performed this operation on six different occasions, the last one a very short time ago, and in no instance has the slightest delay in the healing of the wound in the intestine been noted. One patient, who had always suffered from an excessively irritable stomach, died after prolonged and uncontrollable vomiting. No sepsis or wound disturbance of any kind was found in this case.

It seems that this operation has a very legitimate place in gall-bladder surgery, and one which has not been sufficiently appreciated. Why it has not been more frequently resorted to by others McBurney does not understand, unless it is from the traditional fear, which dates back to a period long before intestinal surgery was understood, of opening and suturing a piece of gut. When a gall-stone lies in the common duct, at any point in the upper two-thirds of that passage, the approach to it through the wall of the duct is not difficult. In most cases, however, the management of the wound in the wall of the common duct is by no means simple, for although the wound may be left open and the space about it drained through the anterior abdominal wall with comparative safety, yet of course one would much prefer when it is possible to avoid long-continued drainage with its accompanying dangers. Suture of a wound in the common duct can occasionally be accomplished with comparative ease, more especially if the patient is thin and no adhesions exist to interfere with clean intraperitoneal work; but very frequently the complete suture of a wound in the common duct is exceedingly difficult, especially when the wall of the duct has become much thinned by distention, and successful suture may be quite impossible.

When a stone is situated at the extreme lower end of the passage, and when it cannot be dislodged to a place higher up in the duct, its removal without opening the intestine is a matter of great difficulty and not a little danger. Under such circumstances it seems that the removal of the stone through the intestine is clearly indicated, there being no possible objection to the method, except-

ing the fact that the intestine is necessarily incised. When one remembers, however, how much easier, on account of proximity, it is to suture the anterior wall of the duodenum than to suture the incised wall of the common duct, and when one remembers the rapidity and perfection with which properly sutured intestinal wounds heal, the choice of operation in suitable cases seems to lie clearly in favor of the method which the author has described. His conviction is that this operation has a much wider application than he has thus far given it, and his experience would lead him to prefer this plan for the removal of a calculus situated at almost any point from the termination of the cystic duct to the point of entrance of the common duct into the duodenum. He has found the orifice of the duct very easily dilatable, and it may be freely incised for at least half an inch with perfect safety. The operation is quicker, cleaner and safer than the operation which is usually done. It has also the advantage that, by the introduction of a probe, the bile-ducts can be examined for a long distance upward towards the liver, and also, the orifice of the duct having been dilated to a large extent, there is far less likelihood that overlooked fragments of gall-stone, granular material, or thick bile will be retained and give rise to further obstruction.

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ON THE CAUSE AND MECHANICAL  
TREATMENT OF SUBLUXATION OF  
THE SEMILUNAR CARTILAGES  
OF THE KNEE-JOINT.

SHAFFER (*Annals of Surgery*, October, 1898) calls attention to the fact that "Hey's Internal Derangement of the Knee-joint," occurring as it does from trivial mishaps as well as from major injuries, and being a not infrequent accident, it seems strange that there should be any doubt as to its essential trouble so long ago as 1803. A further study of the subject in Allingham's treatise, "Internal Derangement of the Knee-joint," published in Wood's Medical and Surgical Monographs in 1890, will dispel all reasonable doubt in the matter. It may be profitable, however, to inquire into its exact mode of production, but the essential nature of the trouble is well understood.

From these and other sources, it may be assumed that the "internal derangement" described by Hey is occasioned by a varying degree of displacement—by even, in many cases, an imperceptible subluxation of one

of the semilunar cartilages. In brief, a visible or manually demonstrated existence of the subluxation is not always necessary. The trouble is so far "internal" that in many cases the ordinary physical signs of a dislocation are not to be observed or felt. The writer has seen several cases where the trouble was diagnosticated as a "sprain," and he knows of two instances where the physical signs of the trouble were so inconspicuous that a diagnosis of "a hysterical joint" was made.

A prolonged study of many cases convinces the author that, aside from the generally accepted view that this subluxation occurs while the knee is flexed and the leg is rotated, there are other contributive causes which have not been carefully investigated—in short, that it is not the simple fact that rotation of the tibia occurs at the knee during flexion and extension of the joint, for these are normal movements, but rather that there is a delayed or hindered extension and rotation which permits this accident to occur. It would seem, from his studies, that this subluxation is not likely to occur, and he doubts if it ever does occur, except perhaps in cases of violent traumatism, while the quadriceps extensor muscle is relaxed.

Nor is the trouble ordinarily considered as one which belongs to orthopedic surgery. Especially since Allingham's time it has been regarded as being within the domain of the general surgeon, and so it is in its purely operative aspects. But, as with chronic diseases of the spine and joints, it has its conservative side, and if orthopedic surgeons can offer relief and cure by mechanical means, the general surgeon will welcome their efforts and aid them in their work.

It seems plain from cases the writer records that in order to prevent the recurrence of a subluxation of the semilunar cartilage, it is necessary to correct the undue ligamentous weakness of the joint, and to prevent an abnormal rotation of the tibia; in short, to give the knee and ankle antero-posterior motion only. Under these circumstances undue strain is taken off the quadriceps and the ligamentum patellæ, and under favorable conditions the latter, as well as the relaxed crucial ligaments, may shorten very materially in the course of a few months.

The object is to prevent every movement at the knee and ankle except antero-posterior motion—in short, to turn the knee into true hinge-joint, removing entirely the rotation of the tibia. The important part of the appara-

tus Shaffer employs, next to its simple hinge movement, is the joint at the knee, which is so arranged that it will stop the extension just at the point of comfort to the patient, and this point of comfort represents an absence of strain upon the knee-joint ligaments. This is very essential to the cure of the trouble, for experience proves that if the strain is taken from the ligaments they will shorten, and the "wobbly" knee will gain stability and strength in a few months.

It is important that the center of the pad at the knee should be opposite the true center of motion (opposite the most prominent point on the internal condyle is near enough) at the knee, and that it should rest snugly against the condyle without undue pressure. The apparatus need not be made heavy, the principal strength being necessary in the rod which connects the knee with the ankle-piece. It is preferable to have this rod on the outside.

In many cases of Hey's joint there is an acquired, or perhaps congenital, lateral mobility of the knee-joint. This condition existing, the normal rotation of the tibia in flexion or extension of the knee is greatly increased.

In many cases, if not in all cases, there exists an elongated ligamentum patellæ, which so modifies the action of the quadriceps extensor muscle upon the tibia that the force of its contraction upon the tibia is modified or delayed in such a way that extension and rotation are not synchronously performed. And it seems more than probable that this condition forms an important factor in the production of the subluxation of the semilunar cartilage.

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#### THE CORRECTION OF SPINAL DEFORMITY BY STAGES UNDER AN ANESTHETIC.

GIBNEY in the *Medical News* of September 24, 1898, places on record additional notes on some cases already reported by him. He sets forth his plan of treatment with the idea of disabusing the minds of his readers, as his own has been disabused, of certain erroneous impressions and certain dangers which have been suggested by writers, some of whom are simply critics. At the same time he states that he has no desire to give the impression that the operation itself is entirely free from danger. The patient, for instance, may take either poorly, too much force may be employed at the first operation, the disease itself may

be located in a dangerous part of the spinal column, or the personal environment of the patient may be a contraindication; yet Gibney is convinced that with reasonable care, such as orthopedic surgeons are in the habit of employing in their work, the deformity may be corrected by repeating the procedure, say half a dozen times. Again, a certain amount of correction may be secured without the use of an anesthetic by frequent renewal of the plaster-of-Paris or whatever dressing may be employed. Especially is this desirable when one is not thoroughly conversant with the use of plaster of Paris. Even in the best of hands excoriations may sometimes occur, and excoriations occurring in cases like these under consideration necessarily bring discredit upon the treatment.

In England, where plaster has for a long time been tabooed, steel and iron appliances are employed, yet such appliances are generally managed or controlled by skilful men. On the Continent plaster of Paris, with an immense amount of cotton-batting, is wrapped about the body, and it does seem that the deformity is bound to recur where so much cotton is employed. The ideal dressing would, of course, be a skin-fitting plaster-of-Paris bandage secured accurately about the salient points, thus insuring a perfect fit. In this country most practitioners are reasonably familiar with the use of plaster, and take certain precautions that will guard against excoriation. It may be just as well to state that excoriations are not the worst things a patient can have. Even if a small ulcer is produced over the tip of the boss, or a long one at the side of it, there is no real harm done. The only trouble is we are obliged to discontinue the fixation, during which period the deformity will recur. In the writer's cases he has not seen fit to include the head in the dressing. He has employed piano felting on either side of the boss, over the iliac crests, along the free ribs where these protrude, and has bound the felting on with a cheese-cloth bandage after having secured the pads more firmly by means of a needle and thread. With such precautions he rarely finds an excoriation.

In reapplying plaster when an anesthetic is not employed, Gibney has been in the habit recently of hyperextending the column and the hips, thus securing a very decided recession of the deformity. At the time he began this work he was under the impression that the method had not been employed in the City of New York. He finds since, how-

ever, that while this is true, it had been employed in Chicago. The writer then records five cases illustrating the points he has mentioned above; these include all the cases of Pott's disease, while he follows with three cases of lateral curvature, in which latter cases results were not so good. Yet it is a slow process. One gains very little at each operation, and consequently gets discouraged. Inasmuch as the cases subjected to this procedure are extreme, as a rule, and inasmuch as the apparatus and exercises fail to effect any decidedly good results, the author feels that it is our duty to resort to almost any method which is attended by the minimum amount of danger.

There have been a certain number of bad results in reported cases from the other side of the water, but none on this side. It is well to bear in mind that any good thing can be abused. At the same time we should remember that the deformities which are now under discussion are most obstinate, and at times unyielding. The aim should be to break up these osseous adhesions and to render the column flexible. This being accomplished and care being taken to hold the spine in better position for a few months, this treatment can be followed by gymnastic methods with greater hope of success.

#### THE TREATMENT OF RACHITIC DEFORMITIES.

REGINALD H. SAYRE (*Pediatrics*, Aug. 15, 1898) recommends the following treatment in this condition:

The treatment should be adapted to the pathological condition which happens to be present at the time when the case comes under observation. As these bone changes usually take place slowly, and, except in acute cases, are not accompanied by much pain or disability, the fact that rickets is present may escape observation until a marked degree of deformity attracts the parents' attention; but careful inspection of children who are brought for examination will often detect the presence of rickets, and the institution of proper diet and mode of life will prevent incipient deformities from becoming marked.

Cases like this should not be left to themselves, with the information that they will "grow out of it," but should be helped in the growing out process by treatment directed to improving their nutrition and general vitality. Cod-liver oil is certainly of very great benefit,

and should be tried, except possibly in extremely hot weather. It is almost always well digested, especially when given in the form of an emulsion. There has been a great deal of discussion both for and against the use of phosphorus. Kassowitz, from his experiments on lower animals, concluded that in small doses, long continued, it was capable of decreasing the size of the blood-vessels in the bones, and as these are abnormally large in rickets, he in consequence used it in the treatment of this disease, as he claimed with great advantage. Other observers have followed in his footsteps, and claim also very beneficial results, while still others have not found as great benefit in their observation. The writer, personally, thinks that it has yielded decidedly good results in his hands, though in almost all instances the child's mode of life has been such that he has found it necessary to correct errors in diet at the same time, and therefore the improvement which he has noticed may not have been due to the phosphorus, although he believes it is responsible for part of it at least. The form in which he has administered it has been the elixir of phosphorus of the National Formulary, devised by Dr. Charles Rice, head of the drug department of Bellevue Hospital, which is as follows:

Spirit of phosphorus, f ʒ iij ¾;  
Oil of star anise, ℥ xvj;  
Glycerin, f ʒ ix;  
Aromatic elixir, q. s. ad f ʒ xvj.

Each fluidrachm contains ʒ ʒ grain of phosphorus.

The author finds that children of a year old can take ʒ ʒ grain of phosphorus three times a day with no bad results, and in children somewhat older he has given ʒ ʒ grain three times a day, with great benefit. These doses are much larger than are usually employed, but he has seen no bad effects from them.

Small children with rickets ought to be kept in the recumbent position and receive daily massage, as the soft tissues of their bodies are as much below the normal tonicity as are their bones. In many of these cases slight antero posterior or lateral curvatures of the spine can be detected, and in such cases Sayre knows of nothing so useful as the wire cuirass. It is far better than confinement in bed, as it permits the child to be carried outdoors for fresh air and sunshine—two great aids in cases of malnutrition, whose effect seems often to be overlooked, while too much importance is attached to drugs.

Curves in bones are often found even before children have walked, and manipulation by the hand is an excellent method of reducing these in slight cases. This sort of manipulation in the great majority of cases, however, can be practised but a short part of the twenty-four hours and must generally be supplemented by instrumental aid to retain the improved position that has been secured by the hand.

It is unusual for children with rickets to come under the observation of the orthopedist until they have begun to walk, when they are not infrequently brought to be cured of pigeon-toe; and upon examination it is discovered that the pigeon-toe is produced by the child's instinct, which teaches it to turn its toes in in order to avoid undue strain upon the arch of its foot, which the latter is incapable of sustaining on account of the debilitated condition of its bones, ligaments, and muscles; so that if we adjust an apparatus which compels the child to turn its toes out, we will be doing it vastly more harm than good, causing a flat foot to result, and quite likely increasing the tendency to knock-knee, which the child very probably presents. We will further find, upon questioning the parents, that the child has always perspired very freely around the head, possibly to such an extent as to leave a wet place upon the pillow, and that it continues to do so, while careful examination of its body will reveal the presence of abnormally large epiphyses, with a history that the child has been slow in walking.

If the case has advanced further, and a decided knock-knee or bow-leg is present, and it is found that the bone is at all springy, the author resorts to the use of a plaster-of-Paris bandage, extending from the toes as high as possible on the thigh, and bends the leg as nearly straight as possible while the plaster sets. If it has not been possible to wholly correct the deformity in this manner, after the expiration of a day or two, the author cuts through the plaster shell at the point of greatest deformity, and bending the leg toward a straight line, opens a gap at the point where he has divided the plaster. Into this gap a small plug of wood is inserted, and a few turns of the plaster bandage applied to unite the upper and lower parts of the splint.

In following out this treatment it is necessary to protect bony prominences from undue pressure, and not to correct the deformity to such an extent as to cause pain to the child

after the bandage has been applied, otherwise a pressure sore will be the probable result. After a week or ten days this process may be repeated until the legs have been brought to a normal position.

This method the writer believes was first introduced by Wolff, in Berlin, and has been in his hands infinitely more satisfactory than the application of braces and straps. In cases of children whose bones are sufficiently hard to make it wise to allow them to walk it is not practicable, as a usual thing, to apply a brace and strap to a bow-leg or knock-knee in such a manner as to exert force upon the bone sufficient to be of much benefit, and he has found this plaster dressing, which seems at first sight extremely clumsy and inconvenient, much cheaper and more effective, possessing the additional advantage for country practitioners that the services of a skilled mechanic are not required.

In some cases of lateral curvature the underlying cause of the deformity is evidently rickets. In such cases, in addition to exercise, gymnastic training, and diet, the spine should be supported by a plaster-of-Paris jacket, which should be worn until the soft stage of the disease has passed, irrespective of the time this may require.

In cases of knock-knee and bow-legs, where the deformity has been corrected either by manipulation or osteotomy, it is often advisable for the child to wear a slight supporting brace, for the purpose of preventing the return of the deformity, and to this end the author thinks that instruments with joints are as useful as he has found them useless in the correction of deformity.

If the patient has passed to the latter stage of the disease, and eburnation of the bones has taken place, it is useless to waste time in endeavors to rectify the deformity by manual or instrumental means, and the bone must be broken either by an osteoclast or a chisel. Which instrument should be used depends largely upon the preference of the surgeon, upon his skill in using either the one or the other, and partly in the location of the curve. Sayre states that he, personally, can divide a bone closer to the joint with a chisel than he can with an osteoclast, and should prefer osteotomy in cases where he wishes to make a section very close to a joint. But in cases where the bone is to be divided at a distance from the joint greater than two inches, he finds the osteoclast of Dr. Grattan, of Cork, a useful appliance, and in cases where he wishes to break the tibia and fibula in two

places, in order to correct the deformity, he prefers to use it. As originally introduced by Dr. Grattan, it had the disadvantage of requiring a very skilled assistant to study the pressure-bar of the instrument, in order to avoid cutting soft tissues; but this is avoided in his later apparatus by making the pressure-bar automatically controlled by means of a handle which passes through the base of the apparatus. The straight edge of the pressure-bar in both of Grattan's instruments renders it liable to cut the skin, and Dr. A. M. Phelps has modified the apparatus, curving this bar and making it less sharp, almost entirely removing the danger of lacerating the skin.

In the after-treatment of these cases, whether we employ osteotomy or the osteoclast, it is necessary that the splint employed should pass sufficiently far from the seat of fracture to retain absolute control of the fragments, as is true of all fractures, and in consequence it is always wise to run the splint well up upon the thorax in cases of knock-knee and high up on the thigh in cases of bow-legs, in order to hold the bones in such position as to correct the deformity. This is especially true in those cases of knock-knee in which there is a rotation of the femur on its long axis, as well as a hypertrophy of the inner condyle, so that when the neck of the femur is in its normal relation to the pelvis the foot points outward at right angles to the body instead of straight ahead. In these cases it is not only necessary to correct the angular deviation at the knee-joint, but to rotate the lower fragment of the femur upon the upper, sometimes as much as  $75^{\circ}$  or  $80^{\circ}$ , that the foot may be brought in proper relation to the body. In cases of bow-legs in very small children it is often a good plan to fasten the plaster-of-Paris shoes to a cross-bar, by means of which the legs of the child can be kept at right angles to its body by suspending them from a rod at one end of the bed, the chances of wetting the plaster being thus diminished.

The writer emphasizes, also, the possibility of non-union in some of these extremely rachitic cases, the bone seeming incapable of reunion, probably on account of the great eburnation which is present, which has impaired nutrition to an extent sufficient to prevent the formation of new bone cells. This emphasizes the importance of treating the case in the beginning, while the bones are sufficiently soft to be bent, rather than waiting until fracture of the bone becomes necessary.



*THE VALUE OF RECTAL LAVAGE AND IRRIGATION.*

RAMON GUIERAS publishes an exhaustive article on this subject in the *Post-Graduate* for August, 1898. He thinks that in rectal hydrotherapy by means of irrigations we have an extensive field for work and observation; that the best results are obtained in cases where there are distinct pathological lesions in the rectum or lower bowel; that the diseases of the genital tract, both in the male and in the female, are far more benefited by this treatment than is generally supposed; that the influence of these irrigations on the secretion of the kidney as shown is of the greatest importance, and should be tried in all cases where other means now in vogue have proved unsuccessful; that the effects of this procedure on the circulation seem to be so stimulating and so opposed to the conditions of shock that it would be advisable to employ it in cases of severe operation, where there have been or there is expected to be a considerable loss of blood, as a preventive measure.

*ANOTHER VIEW OF CONSERVATIVE SURGERY OF THE TUBES AND OVARIES.*

COR (Medical News, Sept. 24, 1898) presents an exhaustive paper on this topic. He says the simplest form of conservative treatment consists in separating the adhesions around tubes and ovaries which present few if any macroscopic evidences of disease. This is, undoubtedly, a most valuable procedure, since these adhesions are often the cause of abdominal pains entirely out of proportion to the local lesion. The writer's experience is certainly not different from that of his readers when he says that, while many of these patients have been greatly benefited as regards the relief of both dysmenorrhea and persistent pains, the adhesions have often reformed. It is safe to say that up to the present time no method of absolutely preventing the reformation of such adhesions has yet been discovered. They occur after the simplest aseptic celiotomies; in fact, it is the rule to meet with them in secondary operations. Although he has practised the method frequently he has always regarded the mere separation of such adhesions by vaginal section as an operation of no permanent value, especially when the ovaries were prolapsed in Douglas' pouch. They naturally tend to resume their former position, and to become fixed by fresh adhesions. It has seemed to the author much more rational to employ the

abdominal route, and, after separating an adherent ovary, to suture it near the pelvic brim. Conception has undoubtedly followed this simple procedure, but one can instance quite as many cases in which the patient became pregnant with one or both ovaries buried in adhesions.

A further step in the direction of conservatism is the puncture or excision of small cysts on the surface of the ovary. This seems to carry us back to the early days, when we used to remove such ovaries simply on suspicion. Surely we have learned a little pathology since then: among other things, the fact that such cystic ovaries are rarely the forerunners of large cysto-adenomata, and that dropsical follicles the size of marbles may still contain healthy ova. Pozzi has written much on the subject of ignipuncture of sclerotic ovaries. But in spite of the amount of honest work which has been expended on the histology of the ovary, we are not yet in a position to define strictly the limits between normal and pathologic cirrhosis in the stroma. Doubtless in the hasty inspection at the operating-table corpora fibrosa are frequently mistaken for inflammatory thickening. This being the case, how do we know, when we puncture or excise a cyst, or an area of supposed cicatricial tissue in the ovary, that we are really doing the patient a service by removing a pathologic condition? That she becomes pregnant afterward is hardly a proof that the operation was a direct cause of pregnancy. Invest the procedure with high sounding terms as we may, it still remains an experimental attempt to remove what we only suspect may be a cause of future trouble. Curettement is usually performed as a preliminary step, so that in successful cases there must always be considerable doubt as to whether this or the abdominal operation was the true factor in overcoming sterility.

It has been assumed by those who have written on this subject that the risks in ovarian and tubal resection are practically *nil*, but the writer is personally cognizant of a case in the practise of an eminent surgeon in which secondary hemorrhage followed the excision of a follicular cyst *per vaginam*. It was necessary to open the patient's abdomen several hours after the operation in order to check the bleeding, and her escape from death was little short of miraculous. In the case of small purulent and dermoid cysts of the ovary, excision of the diseased portions and suture of the raw surfaces is certainly

not entirely free from danger, since one cannot be absolutely certain that septic foci are not left behind. Delanger, one of the enthusiastic followers of Pozzi, admits that it is practically impossible to remove all the diseased tissue, and that we can only hope to reduce it to a minimum. Pozzi's theory that the action of the cautery causes the absorption of sclerotic tissue is largely theoretical; in fact, he limits the application of this method to what he calls "microcystic degeneration, and diffuse or edematous oophoritis." Landau calls attention to the well known anatomic fact that atresia following gonorrheal salpingitis is really a conservative process of Nature, and asks, quite pertinently, why, then, we should open up such tubes and expose the patient to the risk of a fresh attack of perisalpingitis, or even of death from infection? It is an elementary fact that unless a bacteriologic examination is made during the progress of the operation we are not in a position to affirm with any degree of positiveness concerning the infectious character of the fluid contained within an occluded tube. Pozzi not only asserts that fatal cases of sepsis have been reported after resection of the tubes, but believes that the reason why more women do not die is presumably due to the fact that the distal ends of the tube again become agglutinated, or else are surrounded by fresh adhesions.

In the author's experience, which now includes more than thirty cases (nearly all within the past three years), the immediate ill effects of the operation have not been such as to prejudice him against it on the ground of the added risk. The question as to the subsequent condition of the patient is more important. In all the cases in which he has operated it has been for the purpose of relieving severe pain and dysmenorrhea, and removing adnexa which were hopelessly diseased, or were the seat of small neoplasms. Most of these patients have been kept under observation, and with some of them it has been necessary to perform a secondary operation. This experience has been supplemented by secondary celiotomies performed upon patients who had previously undergone conservative operations at the hands of other surgeons. Doubtless this experience is not an uncommon one. As regards relief of symptoms, the following have been noticed:

In several instances in which dense adhesions were separated, the tube and ovary on one side were removed, and on the opposite side were freed of adhesions and secured as

nearly as possible in their normal position; the results were not as satisfactory as could be wished. The adhesions evidently reformed, the patient suffered from practically the same pain as before, and but slight difference was noted as regards dysmenorrhea. In all these cases the convalescence was afebrile, no drainage was employed, and with few exceptions absorbable sutures and ligatures were used. An examination of several of these patients at intervals of from three to twelve months after operation showed the presence of a painful induration at the site of the remaining ovary and tube. In only one instance, thus far, has pregnancy occurred; this is now progressing normally, although the patient suffered from considerable local pain and menorrhagia for several months after the operation.

The variations in menstruation noted when a portion of the ovary, including from one-fourth to two-thirds of the normal stroma, was left behind have been many. In two instances menstruation, after returning slightly two or three times, ceased entirely. In other cases the flow was slight and irregular, but persistent; in two more profuse than before, and attended by pain several days before and during the flow. In the writer's experience the relief of dysmenorrhea has been gradual rather than immediate.

This result is hardly surprising in view of the fact that the portion of the ovary which remains has been known to atrophy entirely, or to undergo cystic degeneration. Cases in which a secondary operation has been necessary for the removal of a cystoma, developing from the remains of the stroma, or of a tubo-ovarian cyst, have been reported by Martin and others. The author showed such a specimen at a recent meeting of the Obstetrical Society. Chrobak's objection, that there is great danger of ectopic pregnancy occurring in a resected tube, has fortunately proved to be a theoretical one so far as we are aware.

The first thing which women desire is to be relieved of the pain. When they do not find the promised relief, the question of conception becomes of secondary importance. In the case of young women who expect to be married, or of those who have been married only two or three years, this question assumes far more importance than with those who have been married for several years, or who have already borne one or more children. Here the principal object of the operation is, it is assumed, to relieve pain and to restore health.

The following conclusions are submitted:

1. Conservative operations on the adnexa are to be commended in properly selected cases. The surgeon should avoid, on the one hand, tampering with ovaries that are the seat of slight cystic degeneration or cirrhosis, and, on the other, trying to preserve supposed normal tissue in organs which show such extensive disease that it is doubtful whether the best interests of the patient (both immediate and remote) would not be served by complete removal. In many cases it is advisable to simply separate adhesions. As there is no way of preventing their reformation, it is better to suture prolapsed tubes and ovaries at their normal level in the pelvis.

2. In a certain proportion of cases resected ovaries undergo complete atrophy; in others the stromal remains may form the starting-point of cysts, requiring a second operation for their removal. A tube which has been rendered patent by dissection may again become occluded, or may form a hydrosalpinx or tubo-ovarian cyst.

These are often entirely satisfactory as regards the relief from pain and dysmenorrhea, the preservation of the functions of ovulation, and the occurrence of conception. *Per contra*, constant pain and dysmenorrhea may persist, menstruation may be absent, scanty, or excessive, and pregnancy is so far the exception that it is to be regarded as an unusually fortunate sequence. In any case, we are not in a position to affirm how far conception following resection of the adnexa is directly due to this procedure, or how far to the accompanying treatment—curettement, separation of adhesions, restoration of the general health, improved sexual relations, etc. Our main object is the avoidance of the premature climacteric.

As regards technique, experience has shown that more successful conservative work can be done by the abdominal route, for reasons that are obvious—*i.e.*, thorough separation of adhesions, suture of raw surfaces, checking of hemorrhage, avoidance of drainage, etc. Catgut is preferable as a suture material.

As a corollary to the above, emphasis should be laid on the fact that since the surgeon can never know the exact condition of the adnexa before opening the abdomen, he must not allow himself to be bound by any positive promise as to his course of procedure at the operating-table. While he should endeavor to preserve healthy organs and tissues whenever this is possible, and must necessarily be

guided to a considerable extent by the expressed wishes of the patient, he must not be persuaded against his better judgment to practise conservatism at the immediate risk of her life, or to court ultimate failure in order to give her the more than doubtful chance of future pregnancy.

The conscientious surgeon will not express himself too enthusiastically regarding the results of conservative operations for fear of arousing hopes which may be doomed to disappointment.

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*THE TREATMENT OF PROSTATIC HYPERTROPHY BY THE GALVANO-CAUTERY.*

BOTTINI (*Centralblatt für die Krankheiten der Harn- und Sexual Organe*, Bd. ix, Heft 3, 1898) describes at length the treatment of prostatic hypertrophy with the galvano-cautery. Any surgeon who can pass a catheter is able to make the incision and cauterization by the galvanic instrument. The operation is in no way difficult. The bladder is first emptied; there is then injected into it through the urethra a one-per-cent. solution of cocaine. The surgeon waits for five minutes, and after repeated anesthetization of the urethra and neck of the bladder introduces the instrument, turns the cutting portion against the diseased part, sets the irrigating apparatus in motion, and turns on the electrical current until the knife is heated red-hot. Slowly and gradually the cut is made through the prostatic tissue to the extent deemed necessary to allow the urine to flow freely. After the completion of the operation, which requires two or three minutes, the current is turned off, but the circulation of the water is continued until the instrument has a chance to become cool. The operation is extraordinarily easy and is accomplished without drawing a drop of blood and without giving the patient the least pain. The therapeutic effect is noticed almost immediately; even after a few hours the patient urinates spontaneously.

Bottini has devised two instruments, which he calls the cauterizer and the incisor, having for their object the destruction by heat of a more or less extensive portion of the prostate without injury to the mucous membrane of the urethra and bladder. A stream of water is so arranged that it flows about the instrument, cooling all parts but that brought in contact with the prostatic tissue. The incisor is the instrument which he prefers.

ONE HUNDRED AND FOUR CASES OF  
CANCER OF THE UTERUS TREATED  
BY TOTAL EXTIRPATION.

THUMIN (*Berliner Klinische Wochenschrift*, Nos. 18 and 19, 1898) contributes the history of 104 cases of uterine cancer treated by total extirpation of the womb. There were eight post-operative deaths; thirty-eight died of recurrences; seven were lost to view, although it was known that recurrence had taken place. Two died of metastasis, and in fourteen the cause of death was unknown. Thirty-two remained free from recurrence (30.7 per cent.); thirteen of these were living more than five years after operation. Of the fourteen cases of carcinoma of the body of the uterus, ten were free from recurrence; three of the latter were under thirty years of age, and one had remained well nine years, and one six and a half years, after operation. This would seem to show that the prognosis of cancer in young women is not absolutely hopeless, though Thumin notes that the slow-growing cancers of old women are much more amenable to radical cure, since of ten such cases six remained well for periods varying from one to nine and a half years.

Among the cases which recurred it was noted that the average period of recurrence was a little over nine months; the average duration of life about seventeen months. The operations were completed in one period. In doubtful cases a portion of the growth was removed and examined, and if found malignant the surgeon proceeded immediately to operation. In two cases the paravesical tissues were involved and suture of the bladder was required. In both there was recurrence after operation, and in one case a ureteral fistula; twice there was secondary hemorrhage.

TO PALPATE AN APPENDIX.

An easy way is to stand on the patient's right, using three right-hand fingers to feel with, and three left-hand fingers placed upon these to press with. The fingers that are to do the feeling are pressed by means of the three others down under the border of the right-rectus abdominis muscle at the level of the navel, and slowly drawn toward the examiner. The author's sole landmark, the ascending colon, is then felt to slip out from under the fingers, and by repeating the process toward the cæcum we soon come to its end, and there begin to hunt for the appen-

dix by rolling the cæcum from one side to the other of the finger-tips. The proximal end of the appendix is found near the distal extremity of the cæcum, and we then follow the rest of the appendix in any direction. The proportion of appendices that cannot be palpated will become smaller and smaller as the finger-tips become educated. The point about using no muscular effort in the hand that is to be used in feeling is as important in palpating appendices as it is in palpating ovaries and tubes. The very delicate sense of touch is preserved if the left hand is used for pushing upon the examining hand.—*Medical Record*, Sept. 17, 1898.

THE RADICAL CURE OF CONGENITAL  
HYDROCELE.

Dr. MENCIERE (*Archives Cliniques de Bordeaux*) reports two cases of congenital hydrocele in which the following operative method was used with perfect satisfaction. The operation consists in making a long incision along the long axis of the tumor—that is to say, from above downward, the incision being prolonged to the inguinal ring. The serous membrane should be freely incised, as is done in the method of Volkmann. The peritoneo-vaginal canal should be destroyed by cutting transversely through it with the scissors. The edges of the serous sac thus formed should be brought together and sutured with catgut in such a way that the testicle will be contained in a reconstructed vaginalis, smaller than the first. Above this new vaginalis the serous membrane should be cut to a certain height, so that the peritoneo-vaginal canal will be destroyed beyond a doubt. Then, considering the superior part of this canal as a hernial sac, proceed with the radical cure of hernia. The inguinal ring is closed, the portion of the peritoneo-vaginal canal immediately beneath is destroyed—that is, excised; the testicle is contained in a new vaginalis smaller than the first, whose walls have been destroyed according to the method of Volkmann, the cavity not having ulteriorly any communication with the abdominal cavity. This method, differing from that described by Faure and from that which consists in simply practising a radical cure as in a hernia, is habitually employed. Here the author is not content with opening the vaginalis and reckoning on an adhesive inflammation to obliterate the peritoneo-vaginal canal. The surgeon should not only destroy

the canal, but should also close the inguinal ring. Again, instead of leaving the vaginalis to repair itself, as one does after operating for the radical cure of hernia, catgut sutures are employed to reconstruct it immediately. The operator can, with impunity, reconstruct the vaginalis and afterward close the inguinal ring; but in the case of congenital hydrocele accompanied by hernia it is preferable to close the inguinal ring first, as indicated, and then proceed to repair the vaginal cavity.—*Medical Record*, Sept. 17, 1898.

ON THE SEALING OF OPERATIVE  
WOUNDS ABOUT THE ABDOMEN.

In the *Medical Press and Circular* of August 31, 1898, BISHOP presents a paper under this title. He says it has always been noticed that after division of any tissues, and especially after the separation of those previously adherent through inflammatory changes, although all spouting or even evident vessels were closed by ligature, twisting, sponge pressure, or in any other way, fluid still continued to exude from the raw surfaces; such fluid was usually colored to some extent by blood, and when bacteriology was even faintly understood, was recognized as excellent culture material for the growth of micrococci. Any failure to avoid septic processes in the wound, or in the cavity where these raw surfaces existed, was attributed to the presence of this fluid, which, gradually accumulating and becoming stagnant in the closed wound or cavity, was supposed to decompose, and it was assumed that the accompanying poisonous material thereby resulted. And no one can doubt but that this was true. The practise adopted was, however, one-sided. Every attempt was made to remove this fluid. Chassaignac introduced his rubber drainage tube; Koeberle, one made of glass; and Macewen, tubes made of decalcified chicken bone. Counter openings were made in the most dependent parts so that the influence of gravity might be enlisted in the attempt to drain it away quickly. In the case of the abdomen all such fluids were believed to gravitate into the pelvis; in women, into Douglas' pouch. Presently it was found that so long as the tube remained, so long was there always some fluid to remove, and that if left too long even pus was found in it, even if none were previously present. So a rule arose that when the fluid was colorless and sweet the tube might be taken away. Some surgeons preferred to leave a rubber

tube when the glass was discarded, gradually, and day by day, shortening this, regardless of the fact that if their previous theories were true the shortened tube could not reach the remaining pool of stagnant fluid, and so at last it was abandoned to the same risks as those existing at first. But the glass drainage tube had several dangers of its own. Unless it were constantly moved, or rotated, omentum and even bowel wall was caught in the small openings at the lower end of the tube, not only plugging them and so preventing any flow towards the tube, but themselves becoming injured.

Taking one hundred cases each of similar pelvic inflammation, untoward results, including fatal and complicated cases, followed in twenty per cent. undrained, but in fifty-four per cent. of drained operations; suppuration of the abdominal wound existed in fourteen per cent. of undrained, in twenty-four per cent. of drained cases. Deaths were six per cent. in undrained, thirteen per cent. in drained. These statistics are taken from a *résumé* of 563 abdominal cases.

Nor should all these troubles be avoided, had the patient or surgeon heard the last of the drainage tube. There was yet another, and apparently an unavoidable, result, and that was subsequent ventral hernia. The muscles of the abdominal wall are so disposed that, when firmly united, their combined action compresses the abdominal contents towards the spine, but when once the central union is divided, each half tends to drag itself still farther from its fellow of the opposite side. If reunited at once, and kept together by sutures which will not yield until the plastic stage is over, and a firm fibrous union established, hernia does not appear to be probable, but if allowed to remain open at any one spot until granulation tissue is formed, the union is for a long time so soft and pliable that the action of the muscles slowly but surely thins it out, until a very little increase in the internal pressure of the abdominal cavity demonstrates the weak spot by a hernial protrusion.

The writer then inserts a case illustrating the point above stated. He says we may consider pus found in chronic pus sacs as practically free from active organisms, and as merely representing the débris left behind after the authors of it have perished. With regard to other fluids, Waterhouse's observations show the necessity for careful hemostasis, before the closure of the peritoneum, so as to avoid the possibility of including

blood clots of any size. The only other fluid likely to be present in the majority of cases will be the serous oozing from any large adhesion which has necessarily been separated during the operation. As far as possible such raw surfaces should be covered by adjacent peritoneum, which is attached so loosely that in most instances it can be drawn over them, and this fluid may safely be left to be dealt with by the peritoneum. It is of course evident that progress in this direction is absolutely dependent on the exclusion of germs, the maintenance of absolute asepsis.

There remain a very few exceptional cases in which great damage has been done to intestine, and in which it is impossible to feel certain that the bowel wall may not give way. As to these opinions are still greatly divided, and it seems at present impossible to lay down any definite rule—but these cases are rare.

The question of drainage of the abdominal cavity incidentally involves the question of general drainage of wounds, and it is easy to show that most of the arguments used in reference to the one apply with similar force to the other. In this relation, however, the treatment of the incision in the abdominal wall is of importance. If no drainage is required for the cavity, then no drainage is needed for the abdominal wound. We have, by its elimination, all the conditions favorable for primary union of the tissues composing that wall; and when once the whole line of incision is closed, and the edges of the skin approximated in a right line, it is evident that the second question arises to which we have referred as in process of change, and that is the one of dressings.

If we could at the moment when the operation is finished apply some air-tight material which would seal the wound from the entrance of anything from without, and which would remain air-tight until healing was complete, all nutrient fluids would be preserved for their legitimate purpose, bacteria would be absolutely excluded, and primary union might be reckoned upon.

The first attempt under this line of reasoning was made with collodion and a wisp of cotton wool, which was so arranged as to cover the wound and its surrounding skin for some distance. Good results were obtained by this, but perhaps a later material has on the whole shown itself more fitted for the work. The collodionized wool shuts off the line of incision from immediate observation.

With the new dressing—celloidin—a transparent, closely adherent film could be applied, which in addition to this advantage of transparency added another of strong contraction. This latter quality acted for good in two ways: it decreased the area of the scar, an immense addition for good in some instances, as in scars about the face, and it tended to contract the skin vessels immediately around the line of union, thus limiting the tendency to overfulness of those vessels after any traumatism.

Dr. Mackenzie has reported three cases treated in this way with success: an amputation of the breast, removal of a large lipoma from the gluteal region, and a strangulated hernia. To these the writer adds three out of a large number as illustrating its use in abdominal practise, typical of its advantage and at the same time of the advantage of the principle of non-drainage.

In all these cases, as in most in which this method has been used, the temperature rose during the first twenty-four hours; it did not go beyond  $100^{\circ}$ , and then steadily fell, not rising again.

Perhaps the last case emphasizes most thoroughly some of the advantages of the practise of sealing as opposed to the use of dressings. Children bear confinement badly, and its evil effects would have been greatly intensified had the use of drainage in this case necessitated the constant employment of dressings and bandages.

Of course, in order to avail oneself of these advantages, sterility during the precedent operation is doubly necessary. If, however, this is secured, the only other drawback that he has found to its use has been its tendency to produce small blisters at its edge. The celloidin plate, as it sets, contracts and drags upon the skin in all directions towards the line of union. Its edge frills, and just there small blisters will rise during the first two days. But if these are opened, the fluid dried off, and the surface dusted with boracic acid, so far he has seen no ill effect. If the blisters are not too large, they may indeed very safely be left. They gradually dry up, and when the whole covering becomes loose, as it tends to do between the tenth and the fifteenth day, being then only held by the sutures, the new epidermis has formed under the now dry scurfy material which represents the blister.

Even if the asepticity of one's work is not perfect, it is an advantage to be able to see at once through the transparent dressing

where it is faulty. Increased redness and heat are easily recognized, whilst the tension of increased swelling is quickly appreciated by the patient in its earliest stage, the celloidin being very resistant.

*TREATMENT OF TUBERCULOUS CYSTITIS BY INSUFFLATION OF STERILE AIR.*

REYMOND (*Ann. des Mal. des Org. Gén.-Urin.*, 1897, No. 8), led thereto by the excellent effects of laparotomy upon tuberculous peritonitis, has employed the insufflation of sterilized air in the treatment of vesical tuberculosis. Three cases were thus treated, all with benefit. In the first case there was marked amelioration of all symptoms after two insufflations. In the second one injection was followed by almost complete disappearance of the painful symptoms. In the third a permanent improvement was obtained after the third injection.

The method is pursued by means of a soft sterile catheter and syringe of about 100 cubic centimeters capacity. The air is filtered through a small wad of cotton placed in the nozzle of the syringe. One hundred cubic centimeters of air is driven in very gently and allowed to escape. Then twice or three times this amount is driven in rapidly and allowed to remain for five minutes, after which the catheter is suddenly withdrawn. The treatment is painless and should be repeated every second or third day.

*WOUND TREATMENT.*

RUTHERFORD MORISON gives the following summary of wound treatment in the *Medical Press and Circular* of August 31, 1898:

The antiseptic method, if contact of strong antiseptics with raw surfaces be avoided, allows of ideal wound healing.

In an uninfected wound no drainage is necessary.

For the arrest of hemorrhage, torsion should replace the ligature in the great majority of cases.

Buried catgut sutures are the best for securing apposition of the deeper structures and the skin, for by their use stitch abscesses and the pain and trouble of removing sutures may be avoided.

All clean wounds should be left undisturbed for ten days, and should then be healed.

## Reviews.

A TEXT-BOOK OF PHYSIOLOGY. Edited by E. A. Schäfer, LL.D., F.R.S. Volume I.  
Edinburgh and London: Young J. Pentland. New York: The Macmillan Company, 1898.

Here we have at last, in the English language, an exhaustive encyclopedic work upon Physiology, the chapters of which have been prepared by investigators who have devoted their lives to the study of the functions of the parts of which they write. In this respect the volume before us closely resembles the material which is to be found in Hermann's exhaustive work upon this subject, which so far as we know has never been translated into English, save, of course, that in the present volume physiology is described as it exists to-day, whereas Hermann's work deals with it as it existed twenty years ago. A feature of this volume, too, is the fact that copious bibliographical references are given in connection with every subject with which it deals, and while the illustrations are not as beautiful as some we are wont to find in other modern books, they are sufficiently good and sufficiently numerous to make the text of this the first volume clear and useful. Doubtless the second volume, which will deal with the functions of the nervous system and with the circulation of the blood and similar important topics, will be more profusely illustrated.

The chapters which make up Volume I deal with the chemical constituents of the body and food, with physiological chemistry, the blood, the lymph, the digestive processes, the urine, the milk, the function of the skin, the chemistry of respiration, animal heat, metabolism, and finally with the influence of the ductless glands upon metabolism, or in other words, internal secretions.

The book is one which the teacher of physiology cannot possibly do without, and is highly to be commended to physicians who are sufficiently anxious to make their methods rational to constantly bear in mind the fact that a thorough acquaintance with physiology is the *sine qua non* to professional success.

A TEXT-BOOK OF PATHOLOGY. By Alfred Stengel, M.D. Illustrated. Price, \$4.00.  
Philadelphia: W. B. Saunders, 1898.

Dr. Stengel tells us in his preface that he has endeavored to present the subject of pathology rather from its clinical than its laboratory aspects, and that he has avoided as far as possible questions about which controversies are being waged, except in the

case of the nervous system, where a certain amount of controversial information is necessary. The book consists of nineteen chapters. Of these the earlier ones deal with the etiology of disease and with diseases of nutrition and metabolism, with disturbances of the circulation and of the blood. The fifth chapter deals with regeneration and degeneration, and the sixth with retrogressive changes, while the seventh and eighth deal with bacteria and diseases caused by them, with animal parasites and the diseases which result from their being taken into the body. The second half of the book is devoted to Special Pathology and deals with the diseases which affect the various organs of the body. We are glad to see that Dr. Stengel advances the theory that fever may exercise a conservative influence (p. 43), as we believe that in many instances it is by no means as harmful a process as many have supposed it to be. Some of the definitions which are given are so concise and brief that one wonders after he has read them whether all of the information which should be given is contained in them, but if it is, so much the better. We are sorry to note that very few of the cuts are original, and the colored ones are taken from other publications invariably. As, however, these publications are exceedingly good, this is not a serious blemish, except that it detracts from the original character of the work, and he who writes a book to-day should use every endeavor to justify his contribution to medical literature by making his work distinctly characteristic. In the text Dr. Stengel has undoubtedly succeeded in this line.

Physicians as they get more and more busily engaged in practise are too apt to neglect books of this sort, partly from lack of interest and partly because they feel that the text is oftentimes too much divorced from practical medicine to be of value to them. This is certainly not the case with Dr. Stengel's volume. It is emphatically a very useful book for the student and also for the practitioner, and we look forward to keeping it close at hand for constant reference.

ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS.  
Fifth Edition. By Henry Morris, M.D.  
Philadelphia: W. B. Saunders, 1897.

Aside from all that may be said for or against books of this class (quiz compends) we pass over its pages to discover the real value of the contents, and we feel the more inclined to do so since the text deals with topics in touch with the objects of the GA-

ZETTE. Further than this, the author is frank enough to state that criticisms, both public and private, will be gladly received.

The drugs discussed are studied according to classes, and the classification is practically that of Wood, which is probably the best extant, although it is odd to find that opium is not included under the heading of "drugs which affect the body by influencing excretion and *secretion*." The advantages of classification are many and so are the objections.

As criticisms are asked for the following may be made: The definition of oleoresins on page 23 is not that usually given, to say the least. The statement that the time to use quinine in intermittent fever is in the sweating stage is contrary to our present knowledge. The statement about hydrastin is very crude, even if correct, and few will believe that iron is of value in epilepsy, nor is it usually taught that in anemia this drug should be given till the patient is suffering from headache, nausea, and flushing of the face. Hydrated magnesia is scarcely a purgative (p. 54); turpentine is not an antidote to phosphorus. The singular and plural are mixed on page 68. Under calcium chloride nothing is said of its use as an antihemorrhagic, and if any one believes that antipyrin is not irritating hypodermically let him try it. We do not believe that acetanilid is primarily a heart stimulant in toxic dose. The answer to the question, "How do hypnotics act?" is long and difficult to understand, and the assertion that opium depresses the cardiac motor ganglia needs indorsement. The catheterization of the patient in opium poisoning to prevent reabsorption of the drug is not half as important as repeated lavage of the stomach, which is not mentioned. We doubt whether the bromides cause sleep by producing cerebral anemia, or that they lower blood-pressure while contracting the blood-vessels; and, finally, the statement that no case of acute poisoning is on record is incorrect (see Wood's Therapeutics). We doubt if coca ought to be classed as an anodyne, for it is really a stimulant, and the teaching that death from chloroform is due primarily to cardiac paralysis is hardly correct. Whether death from ether is usually respiratory is a question, for it is as a result of the action of ether upon the lungs or kidneys that death commonly takes place. Strychnine is not all of it eliminated unchanged in the urine, nor is chloral, given hypodermically, a useful means of treating nux vomica poisoning. Nitroglycerin is not



the slowest of the nitrites, and nothing is said of the effect of the nitrites on the vagus. We do not believe that pilocarpine raises arterial tension in man, and we think the use of it in pulmonary edema is, to speak mildly, very dangerous. As this book is entitled the "Essentials of Therapeutics," it is important that it should be essentially correct, and these suggested corrections will improve the next edition.

THE PRINCIPLES AND PRACTISE OF HYDROTHERAPY.  
A Guide to the Application of Water in Disease. By  
Simon Baruch, M.D. Illustrated.  
New York: William Wood & Company, 1898.

This large octavo volume of 429 pages is Dr. Baruch's latest and best contribution to the subject of hydrotherapy, a subject with which Dr. Baruch's name, at least in this country, is closely associated. In the early portion of the volume we find chapters in which are discussed the physiological effects of water, the functions of the skin, and the physical properties of water, while in Chapter IV the effect of the various hydriatic applications upon the physiological functions of the body are described. With the fifth chapter we pass to a description of the various forms in which water can be used and the diseases to which it may be applied with advantage. Finally, the book closes in its twenty-seventh chapter with a historical epitome and a description of hydrotherapy in various countries. From time to time through its pages are illustrations showing how Dr. Baruch employs the various kinds of baths, and these illustrations add much to the practical utility of the volume. One thing which pleases us particularly is the fact that Dr. Baruch has cast aside empiricism as far as possible and devoted himself to the application of water in disease as governed by strictly rational and physiological ideas. We are also very much pleased to note that, unlike many persons who are enthusiastic in the use of any therapeutic procedure, his statements are well judged and he is not carried away by his enthusiasm. He admits that the routine application of the cold bath in typhoid fever is not absolutely essential, telling us that a properly applied wet pack is a useful and acceptable alternative in fevers under such circumstances. We are also pleased to note on pages 136 and 137 that the patient is to be lifted from his bed into the tub during an attack of typhoid rather than be allowed to move himself, and on page 138 there is an excellent illustration as to the method by which a

patient should be treated after he comes from the bath when suffering from this disease. In this connection we would call particular attention to the *résumé* of the methods which may be employed satisfactorily in the treatment of typhoid fever on page 269, and particularly important is the advice that in advanced and neglected typhoid the plunge bath is not as wise as are other methods.

As we have said before, the book is valuable not only because it tells us how to use water in the treatment of disease, but because the statements of the author are countered by correct views as to physiological and pathological processes.

THE CARE OF THE BABY. By J. P. Crozer Griffith, M.D. Second Edition, Revised.  
Philadelphia: W. B. Saunders, 1898.

Dr. Griffith has provided the profession with a book which they can with safety and advantage place in the hands of such of their patients as are young mothers, and although in some portions of the work it has seemed to us he has given almost too much medical information, he has, as a rule, avoided the mistakes which have been made by other writers, who have endeavored to present medical facts to the lay mind.

There are eleven chapters in the book. After the introduction the first chapter deals with the important subject of "Before the Baby Comes," and then with the baby and its growth, its toilet, its clothes and food, its sleep, its government, its care-takers, the rooms in which it lives; and, finally, there is a chapter upon the sick baby, which chapter makes up almost one-third of the book, and in which are discussed most of the ailments from which children suffer. In the appendix a large number of pages are taken up with a discussion of remedies for local use and with a consideration of food preparations to be employed during illness. A copious index completes the volume.

The opening words under the chapter devoted to the consideration of the sick baby show us that Dr. Griffith has endeavored to prevent home treatment, which is so often disastrous in its results. He tells us that the chapter is not designed to render the mother capable of "doctoring" her own children, inasmuch as in the treatment of the sick baby the experienced physician often has his hands full. With this advice the book may be considered, as we have stated in the beginning of this notice, a safe and good one for mothers.

A LABORATORY GUIDE IN URINALYSIS AND TOXICOLOGY. By A. T. Witthaus. Fourth Edition.  
New York: William Wood & Company, 1898.

Professor Witthaus has long been known as the author of a successful book designed to aid the student in acquiring the rudiments of chemistry. In the present edition the first point of interest which strikes us is the fact that he has apparently taken up with the newer form of spelling: thus sulphate is spelled sulfate; but that he is not consistent in the new method is shown by the fact that he speaks of phosphates and spells the word *phosphate*.

The volume deals with chemical manipulations, with reactions, with the analysis of urine and urinary calculi, and with the detection of the various poisons. It is distinctly designed as a manual and not as an exhaustive treatise, and ably fulfils the object for which it was written.

A POCKET FORMULARY FOR THE TREATMENT OF DISEASES OF CHILDREN. By Ludwig Freyberger, M.D., Vienna.  
London: The Rebman Publishing Company, 1898.

This is a little volume about the size of a visiting list, bound with a flexible cover, and designed to give the properties and doses of most of the remedies which are commonly employed in the treatment of the diseases of childhood. How useful it will be we do not know. Under the head of each drug (each drug being arranged alphabetically) we find its properties, its uses, its therapeutic doses, and usually the formula illustrating how it can be used. In other words, it differs but little from the ordinary prescribing manuals, except that it is devoted particularly to the maladies of childhood. So far as we have been able to discover the statements made are reliable (with the exception that castor oil should follow the use of male-fern, which is dangerous) even if limited in their value by reason of their briefness, and errors in dose or therapeutic advice are as a rule not manifest.

AN AMERICAN POCKET MEDICAL DICTIONARY. Edited by W. A. N. Dorland, A.M., M.D.  
Philadelphia: W. B. Saunders, 1898.

No sooner is one useful dictionary published than another steps into the field to challenge its success and to illustrate that even that which seems perfect to the uninitiated may by care be improved. This little volume is stated to contain the pronunciation and definition of no less than 26,000 terms used in medicine and kindred sciences, accompanied by sixty extensive tables dealing with such

subjects as aneurism, oils, weights and measures, reflexes, and the various forms of microorganisms. The medical student of to-day, therefore, has before him three small pocket medical dictionaries, about the size of the ordinary visiting list, from which he can "take his pick," and we may add that should he choose this one he will obtain a lexicon of value to him not only in his student days, but for many years after.

STUDENTS' HISTOLOGY. By Maurice N. Miller, M.D.  
Revised by Herbert U. Williams, M.D. Third Edition. Illustrated.  
New York: William Wood & Co., 1898.

Eleven years ago this useful manual of histology first appeared, the present third edition being revised by Dr. Williams, who has endeavored to bring it in every way in touch with modern histological investigations. It is well printed and the cuts are well executed, which is an important factor not only for the sake of clearness, but because in this volume they are very numerous, and if badly executed would simply occupy valuable space to no purpose. Directions are given for the use of the microscope, the preparation of tissues for microscopical examination, and then in Part II a description is given of the microscopical examination of the various tissues of the body, including cartilage, bone, muscular tissues, and the various organs. By the judicious use of various sized type the points in the text which require emphasis are readily picked out.

The book strikes us exceedingly favorably and deserves, in our opinion, increasing success.

THE TREATMENT OF SKIN CANCERS. By W. S. Gottheil, M.D.  
New York: International Journal of Surgery Co.

This little book of some fifty odd pages deals mainly with the recognition and treatment of skin cancer, particular stress being laid upon the caustic method as the one which experience has commended to the author. He holds that arsenic is the caustic *par excellence* in all cases of cutaneous carcinomata in which treatment with an agent of that kind is applicable, since it possesses a selective action, and is not hurtful to healthy tissue nor to the organism at large. Its use always should be preceded by curetting, and in extensive ulcerations a part of the lesion only—some three or four inches—should be treated at one time, not because of the danger of absorption, but to keep within bounds the pain and swelling. Marsden's paste is

the one preferred; this is made up of two parts of arsenic to one of powdered gum acacia. The paste should be made fresh and applied by spreading it upon a piece of rubber plaster.

Some illustrative cases are appended, only two of which were followed a sufficient length of time to justify the belief that the cure was permanent.

THE OFFICE TREATMENT OF HEMORRHOIDS, FISTULA, ETC., WITHOUT OPERATION. By Charles B. Kelsey, A.M., M.D.

New York: E. R. Pelton, 1898.

In this book are found three lectures by Kelsey, none of them entering into practical details. The first lecture has for its object the counteraction of the prevalent idea in the medical profession that hemorrhoids and fistula are to be cured only by operation. The method of curing them by operation is, however, not described. The second lecture proves that the rectal surgeon should be both a skilled gynecologist and a ready abdominal operator. The third lecture is an argument in favor of rectal resection in favorable cases.

The main purpose of the book is apparently to call the attention of the profession to the advisability of referring rectal cases to its author.

CONTRIBUTIONS TO ORTHOPÆDIC SURGERY. By A. Sydney Roberts, M.D., with a Brief Biographical Sketch by James K. Young, M.D.

Philadelphia, 1898.

This collection, undertaken for private distribution and prepared by the editor as a debt of gratitude, recalls the clear common sense and mechanical talent which had Dr. Roberts lived would have placed him among the world's foremost orthopedists. The papers, though written more than ten years ago, are still modern and can be studied with profit. Dr. Young in his memoir has fittingly and generously eulogized Dr. Roberts.

TESTS AND STUDIES OF THE OCULAR MUSCLES. By Ernest E. Maddox, M.D., F.R.C.S. Ed.

Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent & Co., Lim.; Hirschfeld Bros., 82 High Holborn, 1898.

"The endeavor of this little work has been to cull, from the many tests for the ocular muscles scattered through ophthalmic literature, a selection of the best, to be interspersed with a few original ones, and with several studies of the ocular movements." This is the modest opening paragraph of the preface of this publication, which is admirable in every

respect. Ophthalmologists are already deeply indebted to Dr. Maddox for his tests to reveal the various phorias and for his book on the "Clinical Use of Prisms and the Decentering of Lenses." The present volume increases this indebtedness, and is a book that should be read, studied and used by every ophthalmologist, and indeed, as Dr. Maddox himself suggests, by physicians who are investigating the phenomena of nervous disease.

In order to gain some idea of the scope of the book, it may be stated that chapters I to VII are concerned with anatomical, physiological, and indirectly with optical, principles, while chapters VII to XII contain what may be described as the practical matter, and deal with strabismus, ocular paralyses, mnemonics for ocular paralyses, ophthalmoscopic corneal images and suppressed squints, the name which describes the various types of heterophoria or latent deviations. The book concludes with a chapter on latent torsion, the eye in darkness, and an appendix, in which some of the newer matter taken from Mr. Priestley Smith's Bowman Lecture for 1898 is incorporated.

A pleasing thing is Dr. Maddox's skill in analyzing the literature and the full and fair credit which he gives to American scientific investigation and ingenuity in this line of research, particularly to the work of Stevens, Savage, Risley, and Duane. The book contains more than one hundred illustrations, for the most part black and white cuts, which amply illustrate the text. The print is good and clear, and the book of convenient size and well bound.

G. E. de S.

DIE HEILPFLANZEN DER VERSCHIEDENEN VÖLKER UND ZEITEN. Ihre Anwendung Wesentlichen Bestandtheile und Geschichte. Ein Handbuch für Ärzte, Apotheker, Botaniker und Droguisten. Von Dr. Med. et Phil. Georg Dragendorff.

Stuttgart: Verlag von Ferdinand Enke, 1898.

Those who are familiar with the splendid work done by Professor Dragendorff, at one time professor at the University of Dorpat, in the realm of medical botany, will welcome this his last contribution to medical literature, and the welcome will be all the more heartfelt because the manuscript was completed but a short time before this distinguished investigator died. Like many German works it is divided into fasciculi which deal with the various botanical divisions of those drugs which are used in medicine and allied sciences. The synonyms, habitat and other information concerning the drugs are first given, and then the various modifications of the drugs are named.

Comparatively little information is given in regard to their therapeutic properties, but where the drug contains active medicinal ingredients these are also dealt with. It is therefore a book which is better suited to the work of pharmacists than of physicians, but to those who wish a complete monograph upon medical botany in the German language this series of fasciculi, which has now been completed by the publication of the fifth fasciculus, will prove interesting and valuable.

MEDICAL NEWS VISITING LIST FOR 1899.

Philadelphia and New York: Lea Brothers & Company, 1898.

The Medical News Visiting List has now been used for many years by a very large number of active practitioners, who have come to regard it as a necessary convenience for their practise. It contains in the first few pages a good deal of valuable information as to dosage and therapeutics, illustrations showing the portions of the body which should be incised for the ligation of arteries, and after that blank pages properly superscribed for the records of cases and general memoranda for cash accounts and obstetric engagements. Lists varying from thirty to sixty patients a week are made up in this form. It deserves its success and will continue to be a popular manual or pocket book of records for daily use.

PHYSICIAN'S VISITING LIST FOR 1899.

Philadelphia: P. Blakiston, Son & Company, 1898.

This is the forty-eighth year of the publication of this list, and it goes without saying that its continued cordial reception by the medical profession shows that it meets their wants. Its pages are outlined for thirty patients a week, and its preliminary material consists in a carefully arranged dose list and in an abstract detailing the means of treating asphyxia and similar accidents. To those who have been accustomed to employ it we need not commend it. To those who have not seen it we can cordially indorse it.

HISTOLOGY: NORMAL AND MORBID. By Edward K. Dunham, Ph.B., M.D. Copiously Illustrated.

Philadelphia: Lea Brothers & Company, 1898.

This is at once the most satisfactory and complete book upon the microscopic examination of healthy and diseased tissues which can be found. It has been prepared by an author who knows the needs of medical students from long and well tried experience, and by one who being yet a young man is thoroughly in touch with all the most recent methods of microscopical study. An unusual

characteristic of the volume is the fact that a good many of the illustrations are original, which is a pleasing fact to discover after studying works in which the same cuts are utilized for the description of very different text. As may be imagined from its title, the first 250 pages deal with normal histology and 130 pages more deal with the morbid changes which are recognized under the microscope. The paper and binding are exceedingly good and well arranged for laboratory work or home study.

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## Correspondence.

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### LONDON LETTER.

By RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.  
LOND.

To the October issue of the THERAPEUTIC GAZETTE we contributed some observations on the occurrence of erythematous rashes after enemata. Since this Dr. Still has read a paper on the subject at the Clinical Society of London based on twenty-six cases which had occurred at the Hospital for Sick Children, Great Ormond Street. Like ourselves he has succeeded in clearly establishing the causal relation of the enema to the rash by inducing repeated rashes on repetition of the enemata. He describes the characteristic eruption as appearing chiefly on the front of the knees, backs of the elbows, buttocks, and face. Occasionally the rash was scarlatini-form. He finds the interval between the enema and the first appearance of the rash to vary from twelve to twenty four hours—a much longer period than we suggested—and the duration from twenty-four to forty-eight hours, while constitutional disturbance was habitually absent. We cannot, however, agree with him as to the absence of sore throat and pyrexia. Dr. Still suggested rather happily that a certain number of the cases of so-called "surgical scarlatina" were the result of enemata given before operation; and the resemblance was still closer because of the undoubted occasional occurrence of desquamation after enemata. Dr. Still put forward three possible explanations of the vasomotor disturbance: (1) absorption of some toxic substance from the soap of the enema, possibly from the fats or the resins used (in our recent paper on the subject we alluded to some experiments with various soaps, which seemed *prima facie* to negative this theory); (2) absorption of some fecal

toxin, thrown into solution by the enema (the view we also support); and (3) a reflex effect on the vasomotor centers. This may or may not be, but until we know something of reflex action the hypothesis can hardly rank as an explanation.

Dr. Snow makes some original suggestions as to the treatment of cancer with lymph-gland juice. His proposition seems to run much as follows: The nuclear particles of epithelioma are carried by the lymph to the adjoining glands, which arrest them and so prevent a general blood contamination. Microscopically we often find the lymphatic glands enlarged by this form of irritation, and their structure altered, yet without the survival of any malignant protoplasm. *Ergo*, it must be the function of the lymph glands not only to arrest but actually to destroy the protoplasm of cancer. The resisting power of different groups of glands appears to be different, but in all cases the resistance tends eventually to be overpowered. Dr. Snow's therapeutic inference may best be given in his own words (*Lancet*, Oct. 15): "On the supposition that a natural secretion is the active agent, Messrs. Wanick Brothers have made for me an extract of fresh lymph-glands warranted to contain, as far as possible, the vital qualities of the living organ. I have administered this to sundry cases with apparent benefit and never with any bad symptom. A gentleman seen in July, 1897, going down hill very fast with advanced cancer of the stomach, and very unlikely to survive beyond November or December, had his life prolonged until last April. I hope later to furnish details. I have no facilities whatever for physiological research. The object of my letter is to appeal to some competent physiologist to take the matter up and test it in the laboratory. He would require to ascertain whether a secretion of the gland is, as I suppose, the active agent, or whether, on the other hand, the destruction is effected by a phagocytic action of the lymph cells. Medicine is learning more and more to seek its best weapons in the natural secretions of the body itself. The above principle tallies with the most recent lines of advance." We have no wish to discourage the suggested investigations, but the evidence from therapeutic results can hardly as yet be considered convincing.

At a recent meeting of the Clinical Society Mr. Pearce Gould showed a case of lupus of the whole face treated by thyroid colloid with the most striking results. In three

weeks from commencing the treatment the whole ulcerated surface had completely healed, and the scar tissue was undergoing transformation from a hard hidebound state into a soft pliable condition. Incidentally Dr. Pringle alluded to a series of cases treated by thyroid colloid; he was of opinion that the thyroid colloid was by far the most efficacious preparation of the thyroid gland that is now used medicinally. He was able to point to remarkable results in a considerable number of cases, but his experience of the after history led him to believe that the cure was seldom if ever permanent, as foci of lupoid tissue always remained behind to light up the disease afresh. It was not made quite clear whether Pearce Gould's was a true case of lupus granuloma, or whether it belonged rather to the category of scrofuloderma. Dermatologists seem agreed that the thyroid colloid, like the serum preparations, is much more efficacious in cases of scrofuloderma than in cases of true lupus granuloma.

In the course of the last few months the crude therapeutics of the Christian Scientists and of the Peculiar People have on several occasions been unpleasantly exhibited in the London police courts. The last case—that of Major Lester—has attracted special attention because of the high professional position of the patient. After his medical advisers had pronounced his case hopeless because of an advanced state of tubercular peritonitis, he and his family solicited the services of a worthy widow of the Christian Scientist persuasion. This lady duly commenced her treatment before she had seen her patient, and essayed to alleviate his sufferings—aye, and to cure his disease—not by any medicinal agencies, but by "taking up the right thought of the omnipotence and love of God." Suffice it to say that in a period of one month Major Lester died after much suffering, in spite of the attempt of Mrs. Grant to usurp the special power which Christ had. The jury who sat upon the case very rightly expressed their abhorrence at the so-called treatment of the deceased. It is difficult to see in what lies the Christianity, and wherein the science of this treatment, which is no treatment. In excuse for her action—she having had no experience of peritonitis—Mrs. Grant informed the jury that Jesus Christ never sent the sick to physicians. Is Mrs. Grant ignorant of the elementary facts of Christianity, or did she seek to cover herself from the penalties of the law by a wilful falsehood? Or knowing of the healing

miracles of Christ, does she hold that these were performed by some other power than that which she claims is delegated to herself by God?

Has bromide of strontium any advantage over other bromides in the treatment of epilepsy? Dr. Roche alleges that it has. Every physician will agree that it is less depressing than bromide of potassium, but so far as we are aware the potassium salt is seldom nowadays used alone and in large doses, but almost invariably in small doses and guarded by some tonic drug, such as *nux vomica* or *digitalis*. Dr. Roche has given as much as three drachms daily of the strontium salt without any unpleasant symptoms. This dosage is certainly far larger than could safely be administered in the case of the potassium salt. Dr. Roche's plan of campaign is as follows: He commences with half a drachm night and morning in some vegetable infusion; if the attacks persist, the drug is rapidly pushed to the extreme limit of individual tolerance. When there is any warning of an attack, the patient is to take thirty grains at once, and repeat it every hour if necessary. Dr. Roche has found threatened attacks constantly averted in this manner, and as the strontium salt is seemingly without any poisonous effects there is none of the danger that would attend a similar dosage of the potassium salt. Dr. Roche particularly inveighs against trust in small doses.

At the recent meeting of the British Medical Association Dr. Ewart advocated the alternating administration of drugs by rotation as a practical principle of treatment. The principle is on the lines of the rotation of crops by which the farmer not only rests but fertilizes his soil. Dr. Ewart has been led to adopt this principle of administration by such considerations as these: (1) That some drugs—and those are chiefly the stimulants and the sedatives—lose more and more of their effect the longer they are continued; (2) that other drugs, being slowly eliminated or distinctly cumulative, acquire through prolonged administration an increased activity, and in some instances a modified and sometimes a dangerous action; (3) that the most active dose, in the case of any stimulant or sedative, and in that of many tonics, is (putting aside summation of doses or of their effects) the first dose. On purely theoretical grounds there is beyond question much to be said for Dr. Ewart's suggestions, but who shall say that they can be brought within the sphere of

practical therapeutics; for when, further, Dr. Ewart contends that patients may often be placed with advantage under the joint influence of several drugs, one trembles at the array of bottles around the sick-bed. We fancy Dr. Ewart would find as the logical consequence of his treatment that each of his nurses would demand the services of an experienced bottleman. Dr. Ewart argues that as the first dose of a drug is often the most effective, that therefore it is desirable that every dose should be the first dose; and this end he would attain by increasing the intervals between the doses. But what of the patient during these intervals? There is one point in Dr. Ewart's remarks that will receive universal assent, "that the adoption of this method would supply an opening for almost unlimited ingenuity and judgment in varying the combination of drugs and the order and periodicity of their rotation, to suit the individual cases," or in other words, that treatment conducted on these lines would be an admirable school of mental calisthenics.

The tuberculosis crusade progresses apace. At present nothing substantial has been done beyond the preliminary arrangements, but even now considerable sums of money have been guaranteed by the laity. Yorkshire leads the way, and by the munificence of one or two county plutocrats will soon be in a way to have a sanatorium of its own. The choice of sites must needs be a question of vital importance, but as the sanatoria are for the most part to be wooden and readily portable, an initial mistake will not be irreparable. It is hoped that once established these sanatoria will be self-supporting from the contributions of the middle-class patients, for whom they are intended. We sincerely hope that their success may warrant State aid in providing similar sanatoria for the poor and destitute classes.

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#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

It may be of interest to your readers to know what is the most recent treatment of diabetes as advocated by Dr. Albert Robin, the noted therapist in France. In the first place the patient should be subjected to the special diet recommended in diabetes. If after one week of diet the sugar in the urine has not completely disappeared, the use of drugs is indicated.

Antipyrin is of prime importance in the *first stage* of treatment, and should be administered as follows:

- ℞ Antipyrin, 0.75 to 1 gramme;  
Sodium bicarbonate, 0.50 to 0.75 gramme.  
For one powder; two to be taken daily.

At this stage, tonics, such as cod-liver oil and quinine wine, should be administered; and a mineral water, such as that of Vals, should be taken at meal-times.

Antipyrin should be given five days in succession, at the end of which time the urine is to be again examined. If the urine contains less sugar the *second stage* of treatment may now be entered upon. This stage of treatment consists in the following measures: Every day at the midday meal forty centigrammes of quinine sulphate should be administered. After six days of such treatment it may be ceased for four days, and once more resumed for a second period of six days. In the morning at breakfast and in the evening before dinner one of the following trochisci are to be taken:

- ℞ Arseniate of sodium, 2 to 3 milligrammes;  
Carbonate of lithium, 10 to 15 centigrammes;  
Codeine, 2 to 5 centigrammes;  
Theriacum, 25 centigrammes;  
Dry extract of cinchona, 40 centigrammes.

For one trochiscus. Make No. 30.

The cod-liver oil and cinchona wine are continued.

After two weeks of the second stage of treatment the urine is to be once more examined, and the *third stage* of treatment is to be taken up. This third stage involves the use of opium, belladonna, potassium bromide, alkaline waters, and valerian. Thus, during eight days the following pill is to be taken:

- ℞ Extract of belladonna, 5 milligrammes;  
Extract of opium, 1 centigramme;  
Extract of valerian, 10 centigrammes;  
Cinchona powder, q. s.

For one pill; make 50. Two pills daily at meal-times.

The cod-liver oil is no longer given, but cinchona wine should still be administered. In some cases from two to three grammes of potassium bromide daily may be given in the place of the preparations containing opium and belladonna.

If after the above treatment the urine still contains sugar, the first stage should once more be taken up.

In a recent lecture Dr. Robin spoke of the treatment of diabetic coma. After describing a case recently occurring in one of his wards, he declared this condition to

be generally fatal, but considered that it could be prevented by due foresight. It should be feared whenever the patient presents any gastric disturbance, dyspnea, cerebral excitement or apathy, and the urine on examination presents Gerhardt's reaction, which consists in the following: If to the urine be added a certain amount of a perchloride of iron solution, which should be allowed to run slowly down the side of the glass, the reagent, in conditions where no coma is threatening, gathers in the bottom of the glass, and the urine remains of the same hue as previous to the addition of the perchloride of iron solution. In cases, however, in which diabetic coma is threatening the reagent assumes a deep red color like that of port wine. This change is due to the presence of acetyl-acetic acid. In such cases an energetic treatment should be undertaken, as follows:

1. The antidiabetic diet should be suppressed and only milk given.

2. The bowels should be opened in order to admit of the discharge of all excretory poisons. Sulphate of sodium, which is likewise diuretic, should be given: sulphate of sodium, 30 grammes.

3. In order to saturate the acids formed in the organism twenty grammes of bicarbonate of sodium are to be administered daily by the mouth.

4. The heart must be seen to; if the pulse is small, quick, irregular, the following can be employed:

- Powdered digitalis leaves, 60 centigrammes;  
Distilled water, 150 Cc.

Make an infusion. Add ergotin 4 grammes, and take a tablespoonful three times a day.

When on the contrary the pulse is slow, soft, and weak, subcutaneous injections of citrate of caffeine may be given, or a dose of three grammes of theobromine.

5. In order to help in the digestion of the milk a small spoonful of the following preparation is to be given before each cup of the former:

- ℞ Sulphate of strychnine, 2 centigrammes;  
Distilled water, 300 Cc.

And after each cup the following:

- ℞ Pepsin, 25 centigrammes;  
Malt extract, 10 centigrammes.

6. Should any lactic fermentation occur fluoride of ammonium may be administered. It destroys the fermentations due to micro-organisms without affecting the soluble ferments:

- ℞ Fluoride of ammonium, 50 centigrammes;  
Distilled water, 300 Cc.

A tablespoonful with each cup of milk.

7. Inject daily subcutaneously two doses of glycerophosphate of sodium.

8. Frictions of the entire body should be practised with the following liniment:

- ℞ Balsam of Fioraventi,  
Camphorated alcohol,  
Tincture of cinchona, of each 100 Cc.;  
Tincture of nux vomica, 25 Cc.;  
Essence of cloves, 2 Cc.

9. Finally, administer to the patient "torrents of oxygen," to use Dr. Robin's own expression.

At the Congress of Gynecology and Midwifery, held at Marseilles from October 8 to 13, Dr. Segond, whom some of our readers may have seen in the United States, read a paper on the treatment of ectopic gestation. A brief synopsis of it may not be without interest. Dr. Segond spoke a few words on the medical means that had been employed, such as tapping, strychnine, morphine, electricity, bleeding, and other archaic methods, to use an expression employed by Pozzi.

The celebrated accoucheur of the last century, Baudelocque, had already spoken of the importance of surgical methods, however dangerous they might seem to be. Dr. Segond went on to distinguish the various surgical methods to be put into practise according to circumstances, and he employed the classification adopted by Pozzi in his work on Gynecology. This classification is as follows: Cases of ectopic gestation of less than five months' duration, and cases of more than five months' duration. Either class may be divided into cases of normal gestation, and cases disturbed either by the death of the fetus or by some other complication.

In the first class, where ectopic gestation has lasted less than five months, one treatment is indicated—laparotomy, with removal of the Fallopian tube. Removal by anterior or posterior colpotomy has been successfully achieved in a certain number of cases, but laparotomy is certainly a better operation. In certain cases of incipient gestation the tube may be incised and replaced. Following are a certain number of special cases: When the fetal cyst is intraligamental or situated below the pelvic peritoneum laparotomy is still indicated, but some difficulty may be met with in the enucleation of the cyst and suprapubic drainage may be found necessary. If the cyst is comprised in the uterine horn, it is often possible to remove

the cyst completely without injuring the uterus, though in some cases it may be necessary to remove the uterus either partially or completely.

In tubo interstitial gestation vaginal hysterectomy is feasible, but as diagnosis is well-nigh impossible in such cases it is preferable to employ laparotomy. When there exists likewise fibroma or cancer of the uterus, complete hysterectomy is indicated; vaginal during the first three months, later on abdominal.

A special chapter should be devoted to the complications that may supervene, and chief among them is hemorrhage, from simple hemato-salpinx to complete peritoneal effusion, comprising as middle terms encysted hematocele and hematocele with successive hemorrhages.

In the first case, namely, hemato-salpinx with or without hemorrhage, constituting a tumor that may be removed, laparotomy with removal of the fetal cyst is indicated, and in most cases this should be completely done, though in some Martin has succeeded in opening the cyst and removing the effusion by the vagina.

A second group is formed by cases of suppurating or septic origin. In such cases simple vaginal incision should be performed when the purulent collection is easily found, and vaginal hysterectomy when the lesions exist on both sides, unless the gestation is too far advanced or the mass to be removed too voluminous. Under such conditions laparotomy is clearly the best operation.

When the gestation is advanced over five months, correct diagnosis is absolutely necessary, but this once established the treatment to be followed and the indications for operation are those of abdominal surgery for tumors.

The most important question here is not how one should operate, but when the operation is indicated. Up to seven months, when the fetus is alive, it is better not to wait, but to operate, and in such cases marsupialization and abandonment of the placenta in the abdomen are indicated. Of course, in case a partially or wholly detached placenta is found, with hemorrhage, complete extraction is necessary. From seven to nine months it is better to bide one's time and to wait for a distinct indication for operation. If the fetus is dead, it is better to wait and to remove the entire cyst. When the fetus has been long dead it may be removed by vaginal incision. In such cases the placenta should be removed as completely as possible.



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